

A REVISION OF THE WEST INDIAN COLEOPTERA OF THE FAMILY BUPRESTIDAE

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INTRODUCTION

The present paper is the results of a study of the material of this family from the West Indies found in the collection of the United States National Museum, together with such material as could be borrowed from other sources. Specimens have been received at various times for identification, but since the material in the collection was mostly unidentified, the descriptions widely scattered, and the species of the family from that region having never been treated in a synoptical way, it seemed advisable to bring together as much material from other sources as possible, so that the subject could be treated in a more exhaustive manner, which would facilitate the identification of material by future students.

Three-fourths of the number of species of Buprestidae hitherto known to inhabit the West Indies have been studied by the writer in the preparation of this paper, the 21 species not seen by him, so far as known, are represented mostly by unique types which were not available for study. The adults of this family, although abundant in nature, are so agile that their capture by collectors are not frequent and the fauna here treated appears to have been greatly neglected, but by assembling material from a number of Museums and private collections, a fairly good representation has been brought together, so that in addition to the 80 species previously known, one new genus, and 26 more species are described as new.

The Buprestidae of the West Indies have been treated by a number of authors in a general way. Jacquelin Duval was the first of these authors to consider this family from that region¹ (published in French and reissued the same year in a Spanish edition), and records five genera and 12 species, 4 of which are described as new. Auguste

¹ Ramon de la Sagra's *Histoire physique, politique et naturelle de l'île de Cuba*, 1857, pp. 56-65.

Chevrolat in his *Coléoptères de l'île de Cuba*² records 16 genera and 30 species from material in the collections of Gundlach, Poey, and Chevrolat, of which 11 are described as new. Dr. A. Stahl³ lists two species, one each of the genus *Buprestis* and *Chrysobothris* from Porto Rico. Ed. Fleutiaux and A. Sallé published a *List des Coléoptères de la Guadeloupe*⁴ in which they record 9 genera and 14 species from Guadeloupe, one of which is described as new. Dr. Juan Gundlach⁵ records the same number of genera and species from Cuba as Chevrolat, without describing any new species, but giving more definite localities for the species. The same author, in *La Fauna Puerto Riqueña*,⁶ lists 2 genera and 4 species from Porto Rico. Charles W. Leng and Andrew Mutchler, in *A Preliminary List of the Coleoptera of the West Indies as Recorded to January 1, 1914*,⁷ list 24 genera and 66 species from that region, which are decreased by synonymy in their supplement to the above paper⁸ to 64 species.

In the present paper are included 29 genera and 107 species.

The term West Indies as used in the present paper includes the islands lying in the Caribbean Sea and Gulf of Mexico and may be divided into four groups. First the Bahamas, which consist of about 700 small islands, composed mostly of low lying heaps of calcareous shell and coral debris deposited on a submarine plateau of vast area, forming a submerged link with the mainland of Florida; second the Greater Antilles, including Cuba, Jamaica, Haiti, Porto Rico, and the Virgin Islands, of these Haiti is the center and summit of the Antillean Range, and from Mount Tina, which is 10,000 feet above the sea level, the Antilles slope gently down to western Cuba and Jamaica, and to the Virgin Islands on the east; third the Lesser Antilles, consisting of a large number of small islands lying in two rows, an outer row of limestone and coral inlets and an inner row of volcanic formation; and fourth a number of islands lying along the northern coast of South America, of which Trinidad and Tobago are the most important, and which in a remote period were severed from the continent by the wearing of the equatorial currents. These islands, with the exception of those along the northern coast of South America, are supposed to be of more recent formation than the portions of the adjacent continents. The Greater Antilles during the Tertiary period are supposed to have been a series of active vol-

² Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 571-616.

³ Fauna de Puerto Rico, 1882, p. 171.

⁴ Ann. Soc. Ent. France, ser. 6, vol. 9, 1889 (published in 1890), pp. 425-484.

⁵ Contribucion à la Entomología Cubana, vol. 3, pt. 5, 1891. (Issued in sheets with the *Anales R. Acad. Cienc. Havana*.)

⁶ Ann. Soc. Españo. Hist. Nat., ser. 2, vol. 22, 1894, p. 623.

⁷ Bull. Amer. Mus. Nat. Hist., vol. 33, 1914, pp. 429-431.

⁸ *Idem*, vol. 37, 1917, p. 205.

canoes, attaining a considerably higher elevation than at present and forming a single large island.

The climate of these islands varies according to the elevation, latitude, and to some extent by the degree to which they are exposed to the influence of the trade winds and warm ocean currents, but as a rule it is purely tropical. These conditions offer a bewildering variety of tropical fauna, but whose distribution is by no means uniform. The low lying Bahamas provide little support for vegetation and some are almost barren.

Researches by Charles Simpson⁹ and those of John Small^{10, 11} have shown a close affinity between the fauna of the extreme southern part of Florida, the Florida Keys, and some of the Antilles, just as the fauna of the islands along the northern coast of South America is allied to that of the coast with which they were once connected. In the Greater Antilles the forests are tropical, in some parts consisting of various species of palms, mahogany, tree ferns, and various trees furnishing edible fruits, while on the upper slopes the fauna becomes more characteristic of the temperate zone, and up to an elevation of 4,000 feet are often clothed with pines; farther up, with increased precipitation, rank growth of deciduous trees appear, while the summits are thickly overgrown with ferns.

Since the species are more or less limited in their distribution to certain islands, and on account of the great variety of plants and variation in the temperature, the family Buprestidae from this region should be exceedingly rich in species. Very little collecting has been done, especially in the mountainous sections, where are to be expected a number of new forms. This is especially true of the smaller species, which are mostly leaf and twig miners, and since these forms have been practically neglected by collectors, the number of species will be largely increased by careful collecting.

As the descriptions of the species are widely scattered throughout various publications, some of which are not available to most students, each species is herein redescribed from specimens which are as nearly typical as is possible for the writer to determine from the descriptions. Where specimens of a species are not available for study, a translation of the original description is given.

No attempt has been made to give a complete bibliography; only the more important papers and those which apply to the region covered by the present paper have been cited. References to the species listed in the Leng and Mutchler Catalogue, which has been of the greatest aid to the writer, have not been cited under the species. The collector's name, when known, is given in parenthesis after the local-

⁹ Lower Florida Wilds, 1920.

¹⁰ Flora of Miami, Florida, 1913.

¹¹ Journ. New York Botanical Garden, 1916, 1917, and 1918.

ity record, and the collections in which the various species are located are also indicated.

The writer greatly appreciates the loan of material during his study of this family and wishes to thank the following entomologists for their assistance: Nathan Banks, Museum of Comparative Zoology, Cambridge, Mass., for a collection made by Dr. W. M. Mann in Haiti; Dr. Henry Skinner, for a collection from the Academy of Natural Sciences of Philadelphia, containing the Poey collection from Cuba; Dr. W. J. Holland, for material from his private collection, as well as for the loan of material from the Carnegie Museum of Pittsburgh, collected on the Isle of Pines and Jamaica; Prof. H. F. Wickham, University of Iowa, for material from the Bahamas and Haiti; and George N. Wolcott, of the Insular Experiment Station, Rio Piedras, Porto Rico, for material collected in Porto Rico. G. B. Merrill, Gainesville, Florida; E. G. Smyth, Bureau of Entomology, United States Department of Agriculture; and Frank B. Mason, Philadelphia, have also furnished valuable additions to the material studied. Stephen C. Bruner, chief of the Department of Entomology and Vegetable Pathology, Estacion Experimental agronomica, Santiago de las Vegas, Cuba, has sent an interesting collection taken in Cuba, and has also examined the material in the Gundlach Museum at Habana and furnished the writer with a list of the species contained in that collection. The writer is under great obligations to Dr. F. E. Lutz and A. J. Mutchler for the loan of a valuable collection from the American Museum of Natural History, including collections made by the expeditions conducted by that museum to the various islands in the West Indies, and also those made by the New York Academy of Sciences in conjunction with the museum, as well as other material collected by private individuals and sent to that museum for identification. I am especially indebted to Dr. Charles J. Gahan for the loan of material from the British Museum. This collection contained many species which had been compared with the types of Thompson, Gory, Chevrolat, etc., by the late Charles O. Waterhouse, and has been of the greatest help in my studies.

The writer desires to express his deep appreciation and sincere gratitude to Dr. E. A. Schwarz, of the United States National Museum, for the many helpful suggestions during the course of the work, for his kind and valuable criticism, and for aiding generally in every possible way in the preparation of this paper.

CLASSIFICATION

The family of Coleoptera treated in the present paper has been a great favorite with collectors on account of the large size and

splendid color of many of the species which compose it. The species are generally elongate and more or less cylindrical, although some are very robust and appear ungraceful in form, but this is compensated by the incomparable richness of their colors and markings, and for this reason they have been named "Richards" by some of the older authors. The larvae are variable in form, and live in both living and dead plants, and the adults are found feeding on the flowers and foliage of various plants, or sunning themselves on the trunks of trees during the warmer part of the day.

The genera as defined in the following paper may be tabulated as follows:

KEY TO THE GENERA

1. Sternal cavity formed entirely by the mesosternum (tribe Polycestini) 2.
Sternal cavity formed by the mesosternum and metasternum, or entirely by the metasternum 3.
2. Scutellum visible; tarsal claws simple *Polycesta* Solier.
Scutellum invisible; tarsal claws dentate *Acmaeodera* Eschscholtz.
3. Sternal cavity formed by the mesosternum and metasternum; lateral branches of the metasternum elongate 4.
Sternal cavity formed nearly or entirely by the metasternum; lateral branches of the metasternum very short and compressed on the sides or invisible 22.
4. Antennal pores diffused upon both sides of the serrate joints (tribe Chalcophorini) 5.
Antennal pores concentrated in a pit on the serrate joints 11.
5. First joint of posterior tarsi short, only a little longer than the second joint 6.
First joint of posterior tarsi long, as long, or nearly as long as the following two joints united 7.
6. Prosternal process longitudinally grooved *Psiloptera* Solier.
Prosternal process not longitudinally grooved *Euchroma* Solier.
7. Tarsi more or less depressed 8.
Tarsi laterally compressed *Pelecopselaphus* Solier.
8. Pronotum with a longitudinal median groove or carina 9.
Pronotum without a longitudinal median groove or carina
Chrysesthes Solier.
9. Hind margin of posterior coxae strongly dentate between two emarginations *Hilarotes* Thomson.
Hind margin of posterior coxae normal, not dentate 10.
10. Prosternal process longitudinally grooved *Chalcophora* Solier.
Prosternal process not longitudinally grooved *Halecia* Castelnau and Gory.
11. Front of head narrowed by the insertion of the antennae (tribe Chrysobothrini) 12.
Front of head not narrowed by the insertion of the antennae (tribe Buprestini) 13.
12. Third tarsal joint armed with two long spines *Actenodes* Lacordaire.
Third tarsal joint unarmed *Chrysobothris* Eschscholtz.
13. Metasternal epimeron entirely uncovered 14.
Metasternal epimeron partially concealed by the lateral prolongation of the abdomen 19.

14. Eyes oblique and distinctly converging above..... 15.
 Eyes parallel or only feebly converging above..... 17.
15. First joint of posterior tarsi longer than the second..... 16.
 First joint of posterior tarsi not longer than the second.
- Dicereca Eschscholtz.
16. Pronotum wider in front than behind; body subcylindrical.
- Paracinyra Fisher.
- Pronotum narrower in front than behind; body not subcylindrical.
- Cinyra Castelnau and Gory.
17. Pronotum with three more or less deep depressions at the base..... 18.
 Pronotum without three depressions at base, sometimes longitudinally sulcate at the middle..... Buprestis Linnaeus
18. Pronotum wider in front than behind..... Mixochlorus Waterhouse.
 Pronotum narrower in front than behind..... Peronaemis Waterhouse.
19. Antennal cavities concealed by a transversely oblique carina.
- Aglaostola Thomson.
- Antennal cavities small, rounded, and not concealed by a carina..... 20.
20. Pronotum distinctly sinuate at base..... 21.
 Pronotum truncate or only feebly sinuate at base..... Anthaxia Eschscholtz.
21. Elytra long, covering the abdomen..... Melanophila Eschscholtz.
 Elytra short, not covering the abdomen..... Tetragonoschema Thomson.
22. Sternal cavity formed almost entirely by the metasternum; base of pronotum more or less sinuate (tribe Agrilini)..... 23.
 Sternal cavity formed entirely by the metasternum; base of pronotum truncate (tribe Mastogenini)..... 28.
23. Middle coxae more widely separated than the anterior ones..... 24.
 Middle coxae not more widely separated than the anterior ones..... 27.
24. Antennae lodged in a distinct deep groove in the prosternum..... 25.
 Antennae free in repose, not lodged in a groove in the prosternum.
- Trachys Fabricius.
25. Prosternal process deeply longitudinally grooved; legs lodged in depressions beneath..... Brachys Solier.
 Prosternal process not longitudinally grooved; legs free..... 26.
26. Prosternal process strongly constricted by the anterior coxal cavities; armilliform..... Taphrocerus Solier.
 Prosternal process not constricted by the anterior coxal cavities; form oblong or oval..... Leiopleura H. Deyrolle.
27. Femora serrate on inner margin..... Paradomorphus Waterhouse.
 Femora not serrate on inner margin..... Agrilus Curtis.
28. Eyes parallel..... Micrasta Kerremans.
 Eyes feebly oblique, slightly converging behind..... Mastogenius Solier.

Genus POLYCESTA Solier

Polycesta SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 281-282, pl. 11, fig. 11.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, pp. 1-6, pl. 1.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 62-63.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 1, 1902, pp. 25-26; Mon. Bupr., vol. 1, 1906, pp. 469-522, pls. 9-10.

Nemaphorus SOLIER, Gay's Hist. Nat. Chile, Zool., vol. 4, 1851, pp. 490-491.

Head flat; epistoma very short, and sinuate or truncate in front; antennal cavities small, rounded, entirely closed in front, and sur-

rounded posteriorly by an elevated carina. Antennae rather long, first joint moderately clavate at apex, second obconical, third elongate and subcylindrical, fourth elongate and feebly clavate, fifth to eleventh more or less serrate and each joint armed with a terminal poriferous fovea, the joints becoming gradually shorter from the fifth to eleventh joint, the latter somewhat rounded at the apex. Eyes moderately large, narrowly elongate, elliptical, feebly convex, and slightly converging above. Pronotum strongly transverse, more or less angulated on the sides; base bisinuate and fitting closely to the elytra; surface often concave or longitudinally sulcate at the middle. Scutellum small and variable in shape. Elytra variable, short or moderately long, the sides usually sinuate in front, attenuate posteriorly, with the sides more or less serrate toward the apex. Sternal cavity formed entirely by the mesosternum, which is deeply emarginate in front, the lateral branches broad and diverging. Prosternum wide, flat or feebly convex, the anterior margin sinuate or feebly lobed on each side. Posterior coxae narrow and feebly dilated internally, the anterior margin transverse and rather strongly sinuate; posterior margin strongly, broadly arcuately emarginate. Abdomen with the suture between the first and second segments sinuate and not parallel with the other segments. Legs moderately long; femora subfusiform and flattened; tibiae cylindrical; tarsi compressed and feebly developed, first joint moderately elongate, second and third triangular and about equal in length, fourth wider, more elongate, and strongly triangular, fifth elongate and obconical; tarsal claws simple. Body robust, oblong, more or less elongate, and attenuate in front and behind.

This genus contains about 30 described species, which are all found in the Neotropical region, with the exception of one species from China and four from Africa. This paper includes 13 species, one of which is described as new, all having been recorded from the West Indies.

The species of the genus resemble each other very closely, and considerable confusion has been caused by the erroneous identifications of some of the older species by various authors. The species are not very well represented in collections, and until more specimens from exact localities are available for study, much doubt must still be attached to the names of several species.

My studies of this genus has been made possible through the kindness of Dr. C. J. Galan, of the British Museum, in loaning me a series of species, a number of which had been compared with the types of Linnaeus, Thomson, Gory, etc., by the late C. O. Waterhouse.

KEY TO THE SPECIES

1. Elytra with longitudinal costae between the rows of coarse punctures— 2
 Elytra without longitudinal costae, but with rows of fine punctures; color shining cyaneo-viridis, with purple reflections. (Jamaica)
cyanipes (Fabricius).

2. Pronotum with two large opaque impunctate spots on the disk. (Cuba)
cubae Chevrolat.

Pronotum without opaque impunctate spots— 3

3. Elytra with distinct scutellar costae, more or less abbreviated between the suture and first discal costa— 4.
 Elytra without, or with only feebly indicated scutellar costae— 9.

4. Each elytron with four or five distinct smooth longitudinal costae, not including the scutellar one— 5.
 Each elytron with two or three distinct smooth longitudinal costae, not including the scutellar one— 8.

5. Elytral costae more distinctly elevated than the intermediate reliefs. (Bahamas, Cuba)— goryi Saunders.
 Elytral costae hardly more distinctly elevated than the intermediate reliefs; the costae and reliefs nearly equally distinct— 6.

6. Elytra black, sometimes with a bluish or purplish tinge— 7.
 Elytra rusty brown, with the lateral margins and costae black. (Santo Domingo or Dominica)— regularis Waterhouse.

7. Elytra black, the punctures subelongate and rather irregularly placed. (Cuba)— chevrolati Thomson.
 Elytra black, with a bluish or purplish tinge, the punctures subrectangular and more regularly placed. (Jamaica)— perfecta Kerremans.

8. Pronotum angulated on the sides, feebly impressed at middle and with the posterior angles fitting closely to the elytra; above green, the elytra ferruginous, with a greenish or aeneous tinge along suture; beneath cyaneo-viridis. (Jamaica)— gossei Waterhouse.
 Pronotum broadly rounded on the sides, with a large deep median depression, and the posterior angles widely separated from the elytra; above black with a cupreous tinge, the elytra ferruginous with an aeneous tinge along suture; beneath aeneo-purpureous. (Bahamas)— manni Fisher.

9. Elytra with the scutellar costae feebly indicated— 10.
 Elytra with the scutellar costae entirely absent— 11.

10. Form broad and robust, about two and one-fifth times as long as wide; prosternum coarsely, sparsely punctured. (Santo Domingo.)
porcata (Fabricius).
 Form more narrow and elongate, about two and two-thirds times as long as wide; prosternum finely and densely punctured. (Cuba.)
angulosa Jaquelain Duval.

11. Elytral costae more distinctly elevated than the intermediate reliefs— 12.
 Elytral costae hardly more distinctly elevated than the intermediate reliefs, the costae and reliefs almost equally distinct. (Jamaica.)
olivieri Waterhouse.

12. Form broad and robust, about two and one-fifth times as long as wide; elytral punctures very coarse and deep. (Santa Lucia. Guadeloupe.)
depressa (Linnaeus).
 Form more narrow and elongate, about two and two-thirds times as long as wide; elytral punctures finer. (St. Thomas)— thomae Chevrolat.

POLYCESTA CYANIPES (Fabricius)

Buprestis cyanipes FABRICIUS, Mant. Ins., vol. 1, 1787, p. 178

Polycesta cyanipes WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 254.—KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 474–475, pl. 9, fig. 5.

Polycesta resplendens THOMSON, Typ. Bupr., 1878, p. 45.

Polycesta jamaicensis WHITE MSS.

Female.—Oblong, broadly rounded in front, slightly more attenuate posteriorly and feebly convex above; color above green, sometimes the sides and suture aeneo-cupreous, and usually with a strong violaceous tinge when viewed in certain lights; beneath of the same color as above.

Head flat, with an obsolete depression on the front and a feeble, narrow longitudinal groove on the occiput; surface somewhat rugose, coarsely, deeply, and rather densely punctate, the punctures variable in size and irregularly placed, forming irregular, broadly rounded intervals on the front, which are smooth, shining, and glabrous; epistoma truncate or obsoletely arcuately emarginate in front. Pronotum strongly transverse, nearly two times as wide as long, distinctly narrower in front than behind, widest at the middle; sides obliquely arcuately expanded to the middle, where they are broadly rounded to the basal fifth, then parallel to the posterior angles, which are rectangular (in some specimens the sides are obliquely attenuate from the middle to the posterior angles); anterior margin deeply arcuately emarginate, with a distinct, broadly rounded median lobe; base truncate or feebly bisinuate; disk feebly flattened, with a broad obsolete depression extending over the entire median part, the depression very shallow and with a feeble longitudinal median sulcus, which is more deeply impressed on the basal half; surface declivous on the sides toward apical angles and with a narrow groove along the anterior margin, and sometimes with an obsolete one along the base, coarsely, rather densely, but not deeply punctate, the punctures finer and more remotely separated on the disk, but becoming deeper, coarser, and somewhat confluent at the sides, the intervals smooth and glabrous. Scutellum quadrate or oblong, and slightly wider behind than in front. Elytra feebly flattened above, declivous at the sides, and equal in width to the pronotum at base; humeral angles rectangular; sides nearly parallel to the apical third, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly and coarsely serrate near apex; surface without distinct costae, but with punctured striae, which are feebly impressed, with the punctures fine and irregularly placed; intervals smooth, irregular in width, obsoletely rugose posteriorly, and with a few obsolete punctures; sutural margins elevated posteriorly; humeri obsoletely developed. Abdomen beneath coarsely, rather densely,

and irregularly punctate, the punctures variable in size, open posteriorly, and from the middle of each arises a short recumbent hair, the intervals finely and densely granulose; first segment abruptly convex at middle; last segment rather acutely rounded at apex. Prosternum strongly convex, the surface, coarsely and irregularly punctate, sparsely clothed with a few short semi-erect hairs and the intervals finely and obsoletely granulose; anterior margin with a broadly rounded median lobe, which is feebly arcuately emarginate in front; prosternal process short, broad, and with a short marginal groove on each side, the sides nearly parallel to the middle of the anterior coxal cavities, where they are emarginate and abruptly narrowed to near the apex, which is very broadly rounded.

Male.—Not seen.

Length, 17–25 mm.; width, 5.5–8 mm.

This species was originally described by Fabricius from a specimen from South America in the Hunter collection. Thomson (1878) redescribed the same species under the name *resplendens* from a questionable locality, probably Surinam or Brazil. Waterhouse (1904) examined the type of this species in the Hunter collection at the University of Glasgow, and also the type of *resplendens* Thomson in Oberthür's collection, and states that *cyanipes* Fabricius is the same as *resplendens* Thomson from Jamaica.

The following material has been examined. Coll. British Museum: One specimen labeled simply "Parry, Saunders 74–18"; and another example from Bath, Jamaica, which was compared with the type by Waterhouse. Coll. Amer. Mus. Nat. Hist.: One specimen labeled "Jamaica," without any additional data. Coll. U. S. Nat. Mus.: One specimen labeled "Jamaica" (donated by the Amer. Mus. Nat. Hist.).

This beautiful insect is easily separated from all other species of this genus by the elytra not having distinct costae.

POLYCESTA CUBAE Chevrolat

Polycesta cubae CHEVROLAT, Silbermann's Revue Ent., vol. 5, 1838, pp. 55–56.—GORY, Mon. Bupr. Suppl., vol. 4, 1840, pp. 141–142, pl. 24, fig. 139.—JACQUELIN DUVAL, In Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French Edition), p. 62; (Spanish Edition), vol. 7, 1857, p. 28.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 582 (separates, p. 158).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 165, No. 861.—KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 500–501.

Male.—Elongate, broadly rounded in front, more acuminate behind, and feebly convex above; above uniformly dark aeneo-cupreous, with the bottom of the punctures more reddish-cupreous and in fresh specimens usually filled with a whitish pulverulence; beneath cupreous with a slight purplish tinge and more shining than above.

Head nearly flat, without any depressions on the front, but with an irregular longitudinal carina on the occiput; surface very coarsely, irregularly and densely punctate, the punctures variable in size, coarse and irregular in form on the front, but becoming smaller and more rounded at the sides and on the occiput, sparsely clothed with rather long erect hairs, the intervals irregular in shape, convex on top, smooth and shining, except on the epistoma where they are granulose and subopaque; epistoma obsoletely arcuately emarginate in front. Pronotum strongly transverse, two times as wide as long, only slightly narrower in front than behind, and widest just behind the middle; sides obliquely expanded from the apical angles to just behind the middle, where they are broadly rounded, then more obliquely attenuate to the posterior angles, which are rather acute and covered by the elytra; anterior margin deeply arcuately emarginate, with a broadly rounded median lobe; base bisinuate with the median lobe strongly angulated; disk with a feeble median depression, which is more deeply impressed near the scutellum, and in some specimens feebly longitudinally grooved; surface coarsely and deeply punctate, the punctures denser here and there, and becoming coarse and confluent on the sides, more remotely placed on the disk, where there are two large triangular opaque spaces, which are very sparsely punctate, and separated from each other by the median depression, the surface sparsely clothed with a few very short, inconspicuous hairs. Scutellum small, oblong, slightly wider behind than in front, and strongly convex. Elytra feebly convex, slightly wider than pronotum at base; humeral angles obtusely angulated; sides feebly expanded behind the humeral angles, slightly sinuate at the posterior coxae, nearly parallel to apical third, then arcuately attenuate to the tips, which are conjointly, rather acutely rounded, the lateral margins coarsely and irregularly serrate posteriorly; each elytron with three slightly elevated costae, the scutellar one extending to the basal fourth, and two similar ones on the disk, distinctly marked on the basal region, but becoming obsolete toward the apex, the intercostae nearly as prominent as the costae, irregular in shape, strongly interrupted by the punctures toward the sides, the tops with numerous punctures which are shallow but nearly as wide as the costae, the punctures between the costae, very coarse, deep, irregular in size and shape, and more or less confluent; humeri feebly developed. Abdomen beneath coarsely, densely punctate, and rather densely clothed with moderately long recumbent hairs, the intervals obsoletely granulose; first segment rather abruptly convex, with a densely punctured and pubescent spot at the middle; last segment rather acutely rounded at apex. Prosternum moderately convex, transversely concave at middle, the

surface coarsely, rather densely and irregularly punctate, sparsely clothed with short inconspicuous hairs, and the intervals smooth and shining; anterior margin with a broad median lobe, which is broadly arcuately emarginate in front; prosternal process short, broad, flat and without marginal grooves, the sides nearly parallel to middle of anterior coxal cavities, where they are emarginate and abruptly narrowed toward the apex, which is very broadly rounded.

Female.—Differs from the male in being larger and more robust, the abdomen beneath more sparsely punctured and less pubescent, and the first abdominal segment feebly convex and smooth at the middle.

Length, 15–22 mm.; width, 5.5–7.5 mm.

This species was described by Chevrolat (1838) from Cuba, and its distribution is probably restricted to that island. Jacquelin Duval (1857) simply records it from Cuba, and Chevrolat (1867) states that it is found in the eastern and central part of the island, and that specimens are in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records it from the eastern part of the island.

The following material has been examined: Coll. British Mus.: One male labeled "Cuba (Coll. Chevrolat)" and marked type. Coll. Amer. Mus. Nat. Hist.: Male and female collected on the San Carlos Estate, Guantanamo, Cuba, June 18, 1916, by Chas. T. Ramsden. Coll. Acad. Nat. Sci. Philad.: One female labeled Cuba (Poey Coll. No. 339). Coll. U. S. Nat. Mus.: Male and female collected on the San Carlos Estate, Guantanamo, Cuba, June 18, 1916, by Chas. T. Ramsden. (Donated by the Amer. Mus. Nat. Hist.) There is also a single specimen of this species labeled No. 861 in the Gundlach Collection in Havana which has not been examined by the writer.

This species is easily separated from the other species of this genus found in the West Indies by the two subopaque spots on the pronotum.

POLYCESTA GORYI Saunders

Polycesta depressa CASTELNAU and GORY (not Linnaeus), Mon. Bupr., vol. 2, 1837, p. 3, pl. 1, fig. 2. (Name preoccupied.)

Polycesta goryi SAUNDERS, Catal. Bupr., 1871, p. 58.—KERREMANS, Mon. Bupr., vol. 1, 1906 pp. 481–483.

Polycesta solieri THOMSON, Typ. Bupr., 1878, p. 44.

Polycesta cribrata THOMSON, Typ. Bupr., 1878, pp. 44–45.

Polycesta velasco WICKHAM (not Castelnau and Gory), Canad. Ent., vol. 27, 1895, p. 294.

Male.—Rather broad, short, moderately convex and broadly rounded in front and behind; uniformly black above and beneath, in some specimens the underside with a feeble brownish tinge.

Head flat or feebly convex, without any depressions on the front, but with a transverse depression between the antennal cavities;

occiput not longitudinally carinate; surface coarsely, deeply and densely punctate, the punctures nearly confluent, smaller toward the sides and forming numerous smooth, vermiculate reliefs, sparsely clothed with rather long, fine, erect hairs; epistoma truncate in front. Pronotum strongly transverse, nearly two times as wide as long, distinctly narrower in front than behind, widest at basal third; sides strongly obliquely expanded from apical angles to basal third where they are obtusely angulated, then obliquely attenuate to near the posterior angles, which terminate into an acute angle and projecting beneath the base of the elytra; anterior margin arcuately emarginate, with a feebly angulated median lobe; base rather strongly bisinuate, with the median lobe broadly angulated in front of the scutellum; disk feebly flattened, with a broad, shallow, triangular depression at the middle, and sometimes with an obsolete longitudinal median carina, the sides are broadly declivous toward the apical angles and more narrowly so along the base toward the posterior angles; surface coarsely, deeply and densely punctate, the punctures irregular in size, irregularly placed, distinctly on the disk but becoming more confluent on the antero-lateral areas, the intervals subopaque and obsoletely granulose, there is also a very short erect obsolete hair in the middle of the punctures. Scutellum very small, subquadrate, wider behind than in front, strongly convex and shining. Elytra feebly convex, slightly wider than pronotum at base; humeral angles broadly rounded; sides feebly expanded behind the humeral angles, slightly sinuate at the posterior coxae, nearly parallel to the apical third, then broadly arcuately attenuate to the tips, which are conjointly broadly rounded, the lateral margins coarsely serrate posteriorly; each elytron with a distinct scutellar costa extending to about the basal fourth, and four other strongly elevated costae, first and second costae more distinct, enlarged anteriorly and joined to the base, the third beginning behind the humeral callosity, and the fourth parallel to the lateral margin and separated from it by a row of large, irregular transverse punctures, the costae separated from each other by two rows of large, deep punctures, which are more or less confluent, and with the intercostae not elevated, the costae and intercostae with a few remotely placed punctures and the sutural and lateral margins rather densely punctate; humeri feebly developed. Abdomen beneath rather finely and densely punctate, and sparsely clothed with moderately long pale recumbent hairs; first segment convex at middle and with a densely punctured and pubescent median spot; last segment declivous toward the apex, which is obtusely angulated. Prosternum strongly convex, surface coarsely densely punctate, rather densely clothed with long fine erect hairs, and the intervals obsoletely granulose; anterior margin nearly truncate, in some specimens with an obsolete lobe on each side;

prosternal process short, broad, feebly convex, and without marginal grooves, the sides nearly parallel to the middle of the anterior coxal cavities, where they are emarginate and abruptly narrowed to near the apex, which is very broadly rounded.

Female.—Differs from the male in having the first abdominal segment feebly convex and without the densely punctured and pubescent median spot.

Length, 16 mm.; width, 7 mm.

This species was described by Castelnau and Gory (1837) from Cayenne, Guiana, as *depressa*, but since this name had been used previously by Linnaeus for a species of this genus from South America, Saunders (1871) proposed the new name *goryi*. The species has also been described by Thomson (1878) from Colombia as *solieri*, and the second time in the same paper from Caracas, Venezuela under the name of *cibrata*. Waterhouse has examined the types of *solieri* and *cibrata* in the Oberthur collection and finds that they are identical with the species described by Castelnau and Gory as *depressa*, and later changed by Saunders to *goryi*. This is the species recorded by Prof. H. F. Wickham (1895) from the Bahamas as probably *velasco* Castelnau and Gory.

The above description was made from a male specimen from Venezuela, kindly loaned by the British Museum, and which was compared with the type of *cibrata* by Waterhouse, and with which it agrees. Leng and Mutchler in their List of the West Indian Coleoptera¹² record it from the Antilles, and there is a single male specimen in the Coll. U. S. Nat. Mus., received from H. F. Wickham, labeled "Water Cay, Bahamas" which does not differ from the specimen from which the above description was made. In the Coll. Acad. Nat. Sci. Philad., there is a single female labeled "Cuba (Poey Coll. No. 347)" which is slightly narrower than the other specimens examined.

This is one of the shortest oblong species found in the West Indies. It is entirely black above, equally rounded in front and behind, and each elytron with five distinct costae, including the scutellar one.

POLYCESTA REGULARIS Waterhouse

Polycesta regularis WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14, 1904, pp. 256-257.—KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 487-488.

The following is a copy of Waterhouse's original description:

Oblong, parallel, much flattened, only a little more than twice as long as broad, nearly black, but with a slight cyaneous tint below. Elytra ferrugi-

¹² Bull. Amer. Mus. Nat. Hist., vol. 33, 1914, p. 429.

nous. Thorax not quite twice as broad as long, black, dull, broadest behind the middle, strongly angular at the sides, obliquely narrowed in front and behind; the space from the lateral angle to the base rectilinear. The punctuation strong and sharp; the punctures in the discoidal impression (which is very shallow and ill defined) moderately large and very slightly separated, at the sides they are smaller and crowded together. There are two small spaces at the base which have only a few punctures. The elytra are rusty brown, the margin and costae blackish. There are four smooth costae, the first abbreviated before the middle, the second and third well marked, the fourth fine and abbreviated at the base and apex. The double lines of foveae between the suture and second costa and the second and third costae are regular and the foveae are subquadrate. The foveae which form the more lateral lines are regular, but a little less quadrate. Viewed beneath, the lateral ridge of the thorax is very sharp. The whole under side is clothed with a fine, grey pubescence. The abdomen is very distinctly and rather closely punctured. There is an oval, brown, pubescent spot on the basal segment. Long. 14 mm. *Hab.* St. Domingo (or possibly Dominica).

This species is very close to *P. Chevrolati*, but is smaller, and the lines of punctures on the elytra are very regular.

A single specimen from an old collection, with the locality indistinctly written.

The type of this species is in the British Museum, and since I have been unable to examine it, the species is given its position in the key solely from the characters given in the original description.

POLYCESTA CHEVROLATI Thomson

Polycesta chevrolatii THOMSON, Typ. Bupr., 1878, pp. 43.—KERREMAN, Mon. Bupr., vol. 1, 1906, pp. 488–489.

The following is a translation of Thomson's original description:
Polycesta chevrolatii (Guérin MSS.) Thomson.—Habitat: Cuba. Length, 21–26 mm.; width, 8½–11 mm. Form of *P. thomae* Chevrolat, but entirely black. Head granulate-punctate. Prothorax with the sides strongly dilated behind the middle, feebly depressed at middle, with a feeble longitudinal line at the base; surface punctate, the punctures coarse and densely placed at the middle and sides. Elytra carinate-fossulate, the fossae densely placed and generally subelongate; sides toward the apex denticulate, with apex bispinose. Body beneath and legs sparsely punctate.

Allied to *P. thomae* Chevrolat, but differs from it: first by the general appearance (livrée); second, by the prothorax being straight anteriorly and not as strongly punctured; third, by the fossae on the elytra generally elongate, and finally by the underside less densely punctured.

There is a single specimen of this species in the British Museum, but it has not been examined by the writer. The species was unknown to Kerremans, as he simply quoted Thomson's description in his *Monographie des Buprestides*.

POLYCESTA PERFECTA Kerremans

Polycesta perfecta KERREMAN, Mon. Bupr., vol. 7, 1914, pp. 257-258.

The following is a translation of Kerremans's original description:

Length, 24 mm.; width, 9 mm. Elongate, attenuate behind, slightly convex, entirely black above, with a very feeble purple reflection on the elytra, turning to blue along the suture; beneath black with a slight bronzy tinge, pubescence of a dull reddish color, with the tibiae and tarsi bluish. Remarkable for the regularity and distinctness of the elytral structure. Head rugous, with irregular vermiculate reliefs. Pronotum wider than long, narrower in the front than behind, widest behind the middle; anterior margin truncate; sides strongly obliquely converging to the front, rounded just behind the middle, then sinuate and less converging to the base, with the posterior angles small, feebly projecting externally and feebly depressed on the humeral angles of the elytra; base bisinuate; middle of disk depressed; surface covered with round punctures, rather closely and unequally spaced, more unequal and irregular near the anterior angles, where the intervals form a network of irregular areas. Scutellum small, wider than long. Elytra feebly lobed and transversely impressed at the base, nearly parallel on the sides to the posterior third, then regularly arcuately attenuate to the tip, which is armed with teeth, unequal in length, and densely and irregularly placed between the suture and the sixth row of punctures; surface covered with rows of coarse, transverse, subrectangular punctures arranged in very regular double rows, and separated by smooth, feebly costiform lines. Beneath finely and unequally punctate, the punctures much finer and denser along the external margins of the abdominal segments; legs slightly robust, femur nearly smooth, the punctures fine and widely separated, tibiae a little more coarsely and densely punctured. Habitat: Jamaica (Kerremans's Collection).

No specimens have been seen by the writer which would agree with the above description, so the species has been placed in the key solely upon the characters given in the original description.

POLYCESTA GOSSEI Waterhouse

Polycesta gossei WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14
1904, pp. 257-258.—KERREMAN, Mon. Bupr., vol. 1, 1906, p. 499.

The following is a copy of Waterhouse's original description:

Elongate-oblong, much flattened; green; elytra ferruginous, shaded with green at the suture. Thorax at the widest scarcely wider than the elytra, only slightly angular at the sides, obliquely narrowed in front, very slightly narrowed posteriorly; green, shaded with purple-coppery at the base. Disk lightly impressed; the punctures rather coarse, very close, and rather confused, rather smaller at the sides, with two spots at the base which have only a few punctures. Elytra subparallel, with a not very distinct costa near the scutellum extending about a quarter the length of the elytra. There are two other very distinct smooth costae. The foveae which form the double lines are very regular and somewhat round. Beyond the second complete costa there are four rows of regular somewhat round foveae or large punctures. The underside is a

beautiful bluish green, the legs, parts of the sterna, and margins of the segments shaded with purple. Tarsi cyaneous. The abdomen has some fine greyish pubescence, and on the basal segment there is a brown velvety spot. Long. 11 mm. Habitat: Jamaica (Gosse).

This species is very near *P. velasco* Laporte and Gory, but that has a rather more angulated thorax, etc. It is possible that *velasco* and *montezuma* Laporte and Gory, may be sexes of the same species, but there is not material at hand to enable me to decide.

The type of this species is in the collection of the British Museum and has not been examined by the writer, but is included in the key from the characters given in the original description.

POLYCESTA MANNI, new species

Female.—Narrowly elongate, subsylindrical, broadly rounded in front, more attenuate behind, and moderately convex above; head and pronotum black with the bottom of the punctures and median depression on pronotum more or less cupreous; scutellum black; elytra ferruginous with the suture narrowly margined with a nigro-aeneous color; beneath nigro-aeneous with a slight greenish or purplish tinge, and the tarsi cyaneous.

Head slightly convex without depressions on the front; surface coarsely and densely punctate, the punctures not very deep, irregularly placed, becoming somewhat confluent toward the sides and forming a network of irregular shaped reliefs, also sparsely clothed with long inconspicuous erect, cinereous hairs; epistoma truncate in front; antennae rather long, and reaching to the basal third of the pronotum. Pronotum strongly transverse, two times as wide as long, narrower in front than behind, widest just behind the middle; sides regularly arcuately rounded, more obliquely in front than behind, the posterior angles obtusely rounded and rather widely separated from the elytra; anterior margin feebly arcuately emarginate and without a median lobe; base obliquely truncate to near the middle, where it is strongly angularly lobed and transversely truncate in front of the scutellum; surface with a large, deep oblong median depression, which is longitudinally carinate at the middle, and with an obsolete depression on each side in the antero-lateral areas, the surface in the median depression is finely and densely punctate, the punctures shallow, more or less confluent, and shining at the bottom, on each side of the depression the surface is subopaque with deep pit like punctures, which are irregularly placed and rather widely separated, and on the antero-lateral regions the punctures become confluent, forming a network of vermiculate reliefs, which are more or less shining, in the center of each puncture is a small round elevation from which arises a rather long fine semi-erect hair. Scutellum

nearly square, flat, and broadly rounded behind. Elytra feebly convex, about as wide as the pronotum at base; humeral angles broadly rounded; base strongly angulated; sides slightly arcuately expanded behind the humeral angles, rather strongly sinuate at the posterior coxae, nearly parallel to the apical third, then arcuately attenuate to the tips, which are rather acutely rounded, lateral margins coarsely dentate posteriorly, the teeth irregularly placed and very variable in size; humeri feebly developed; each elytron with 10 longitudinal rows of deep round punctures, which are about equal distance from each other and separated by narrow longitudinal costae, of which the second and fourth are more distinct and strongly elevated than the others, there is also an additional row of punctures extending from the base to near the middle, and separated from the sutural row by a short scutellar costa, which is as strongly elevated as the second and fourth costae, the costae with numerous large, round, shallow punctures, which are irregularly placed toward the side of the costae, becoming more numerous toward the sides and at the apical region, and in the center of which is a minute round elevation bearing an obsolete hair. Abdomen beneath sparsely and rather coarsely punctate, becoming feebly scarous at the sides of basal segments, and clothed with moderately long, recumbent cinereous pubescence, the hairs sparsely placed on median parts but becoming much denser at the sides, the intervals nearly smooth, and moderately shining; first segment moderately convex and without a densely punctured and pubescent median spot; last segment rather narrowly rounded at apex. Prosternum moderately convex, the surface sparsely, coarsely punctate, and sparsely clothed with long fine erect hairs; anterior margin broadly rounded, with a feeble, arcuate emargination at the middle, on each side of which the margin is rather strongly elevated; prosternal process short, very broad, feebly convex, with distinct marginal grooves and with the lateral margins narrowly flattened and granulose, the sides parallel to the posterior part of the anterior coxal cavities, where they are transversely narrowed, with the apex broadly rounded.

Length, 17 mm.; width, 5.75 mm.

Type locality.—Mangrove Cay, Andros Island, Bahamas.

Type.—Coll. Amer. Mus. Nat. Hist.

This species is described from a single female collected at the type locality during May or June, 1917, by William M. Mann.

It is one of the most slender species of the genus and can be readily separated from all other *Polycesta* found in the West Indies by the coloration, and by the posterior angles of the pronotum being broadly rounded and not fitting closely to the base of the elytra.

POLYCESTA PORCATA (Fabricius)

Buprestis porcata FABRICIUS, Syst. Ent., 1775, p. 219.

Polycesta porcata MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, p. 36.—CHEVROLAT, Silbermann's Revue Ent., vol. 5, 1838, p. 56.—WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 254.—KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 516–518.

Male.—Broadly elongate, averaging about two and one-fifth times as long as wide; broadly rounded in front, more narrowly rounded behind, and feebly convex above; color above aeneo-nigris, with a strong greenish and purplish tinge; beneath of the same color but more shining than above.

Head flat without any depressions on the front, but with a short obsolete longitudinal carina on the occiput; surface coarsely, deeply and densely punctate, the punctures variable in size, irregularly placed, and separated from each other by less than their diameter, clothed with a few very fine erect hairs, the intervals irregular in shape, convex, smooth and shining on the top; epistoma feebly arcuately emarginate in front. Pronotum strongly transverse, two times as wide as long, distinctly narrower in front than behind, and widest at basal third; sides strongly obliquely expanded from the apical angles to basal third, where they are obtusely angulated, then strongly narrowed to near the posterior angles, which are nearly rectangular; anterior margin deeply arcuately emarginate, with a broadly rounded median lobe, and the margin smooth and narrowly elevated; base bisinuate, with the median lobe rather strongly angulated; disk with a broad shallow median depression: surface coarsely, deeply, and densely punctate, the punctures more or less confluent in the median depression and toward the antero-lateral areas, glabrous, the intervals densely granulose and subopaque. Scutellum small, suboval, slightly wider behind than in front, and strongly convex. Elytra feebly convex, about as wide as the pronotum at base; humeral angles obtusely angulated; sides feebly expanded behind the humeral angle, slightly sinuate at the posterior coxae, nearly parallel to apical third, then arcuately attenuate to the tips, which are rather acute, the lateral margins coarsely and irregularly serrate posteriorly; each elytron with four feebly elevated smooth longitudinal costae, not including the scutellar one, which is very short and not extending to the base, the costae irregular, sinuate and usually only the two discal ones distinctly marked on the basal regions, becoming more obsolete toward the apex, there are also nine or ten longitudinal rows of large deep elliptical punctures, which are arranged in double rows between the costae, the punctures more or less confluent, very variable in shape and size, and forming a network of alveolus areas, the sutural and lateral margins coarsely and densely punctate;

humeri feebly developed. Abdomen beneath coarsely and rather densely punctate, and sparsely clothed with very fine, short recumbent hairs, the intervals smooth and shining; first segment strongly convex at middle, with a densely punctured median spot, which is densely clothed with short, semi-erect, scale like hairs; last segment rather broadly rounded at apex. Prosternum strongly convex, surface sparsely punctate, the punctures fine on the median part but becoming very coarse and more or less confluent at the sides, sparsely clothed with a few obsolete semi-erect hairs; anterior margin feebly elevated, feebly but broadly emarginate in front, forming an obsolete lobe on each side; prosternal process short, broad, feebly convex, and without marginal grooves, the sides obliquely narrowed to middle of anterior coxal cavities, where they are emarginate and abruptly narrowed, the apex very broadly rounded.

Female.—Differs from the male in being larger and more robust, and the first abdominal segment feebly convex and without the densely punctured and pubescent median spot.

Length, 18-25 mm.; width, 7-10.5 mm.

Originally described by Fabricius (1775) from "Oriente." Mannerheim (1837) and Chevrolat (1838) both record it from the island of St. Domingo, and Waterhouse (1904) states that it is apparently common in St. Domingo.

The following material has been examined. Coll. British Mus.: One male and two females, labeled as follows: St. Domingo (Fairmaire); St. Domingo (Coll. Chevrolat); and St. Domingo (Saunders 74-18). Coll. U. S. Nat. Mus.: One female, labeled "Antilles (Fairmaire)" (donated by the British Museum).

This is one of the broadest species of the genus.

POLYCESTA ANGULOSA JACQUELIN DUVAL

Polycesta angulosa JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French edition), pp. 62-64; (Spanish edition) vol. 7, 1857, p. 28.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 582-583 (separates pp. 158-159).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 166, no. 807.

Polycesta excavata KERREMAN, Mon. Bupr., vol. 1, 1906, pp. 513-515 (part).

Female.—More narrowly elongate than *porcata*, averaging about two and two-third times as long as wide, broadly rounded in front, more acuminate behind, and feebly convex above; color above black or greenish-black, sometimes more or less cupreous, with the bottom of the punctures more distinctly cupreous than the reliefs; beneath dark aeneous to cupreous, with a strong greenish, bluish, or purplish tinge when viewed in certain lights.

Head nearly flat, with an obsolete depression on the front, and a short longitudinal carina on the occiput; surface coarsely and very densely punctate, the punctures variable in size and shape, more or less confluent and from the center of each arises a moderately long, fine erect hair, the intervals irregular in shape, with the tops sharply defined; epistoma truncate or obsoletely emarginate in front. Pronotum strongly transverse, not quite two times as wide as long, distinctly narrower in front than behind, and widest just behind the middle; sides obliquely expanded from the apical angles to just behind the middle, where they are obtusely rounded or angulated, then obliquely narrowed to near the posterior angles where they are more parallel, the angles obtuse and slightly projecting beneath the elytra; anterior margin feebly arcuately emarginate, with only an obsolete median lobe; base bisinuate with the median lobe broadly anugaltes; disk with a broad shallow median depression, which is more or less longitudinally carinate at middle; surface coarsely, densely, and deeply punctate, the punctures much denser and somewhat confluent in the median depression and at the sides, where they are more irregular in shape, and the intervals forming a network of irregular alveolus areas, sparsely clothed with a few short inconspicuous hairs. Scutellum small and subquadrate. Elytra feebly convex, about as wide as pronotum at base; humeral angles obtusely angulated; sides slightly expanded behind the humeral angles, feebly sinuate at posterior coxae, nearly parallel to the apical third, then arcuately attenuate to the tips, which are conjointly broadly rounded, the lateral margins coarsely, irregularly serrate posteriorly; each elytron with a feebly indicated scutellar costa, and with two discal costae, which are smooth, straight, and more distinct toward the base, the costae not more strongly elevated than the intercostae, and separated from each other and the suture by double rows of large deep rounded punctures, which are variable in size, and more or less confluent, laterally the costae are obscure, irregular, and interrupted by the punctures, which are very deep, variable in shape and size, and forming a network of alveolus areas, the suture, lateral margin, and tops of reliefs with a few coarse, shallow punctures; humeri feebly developed. Abdomen beneath finely and densely punctate, and clothed with short recumbent hairs, the pubescence rather sparse on the median parts but becoming denser toward the sides, the intervals smooth and shining; first segment feebly convex and without a densely pubescent median spot; last segment rather narrowly rounded at apex. Prosternum strongly convex, surface densely punctate, the punctures rather fine and more widely separated on the prosternal

process, but becoming coarser, denser, and somewhat confluent at the sides and along the anterior margin, sparsely clothed with fine erect hairs; anterior margin broadly but not deeply arcuately emarginate in front, with the margin strongly elevated; prosternal process short, moderately broad, feebly convex, and without marginal grooves, the sides nearly parallel to the middle of the anterior coxal cavities, where they are emarginate and abruptly narrowed, the apex broadly rounded.

Length, 18-21 mm.; width, 7-8 mm.

Described by Jacquelin Duval (1857) from Cuba. Chevrolat (1867) records it from the central part of the same island from material in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records collecting specimens at Cienfuegos, and also at Caimanera near Guantanamo, both localities in Cuba.

Material has been examined of this species as follows. Coll. British Mus.: Two females, one labeled "Cuba (Poey)" and marked type, the other simply labeled "Parry (Saunders 74-18)." Coll. Acad. at. Sci. Philad.: One female, Cuba (Poey Coll.). Coll. Amer. Mus. Nat. Hist.: One female, Guantanamo, Cuba, collected June 11, 1910, by Chas. T. Ramsden. Coll. U. S. Nat. Mus.: One female, Guantanamo, Cuba, collected June 26, 1915, by Chas. T. Ramsden. (Donated by Amer. Mus. Nat. Hist.) There is also a specimen in the collection of the Acad. Nat. Sci. Philad., labeled "Cuba (Poey Coll.)" which I have placed under this species. It is a very small specimen measuring only 11 millimeters in length and 4.5 millimeters in width, and which agrees in every way with the other specimens of this species examined, except in size. It is a male and has the usual densely punctured and pubescent median spot on the first abdominal segment. There is a single example labeled No. 807 in the Gundlach Museum in Havana which has not been examined by the writer.

Kerremans has placed this species as a synonym of *excavata* described by Blanchard (1846) from Argentine Republic, but since these localities are so widely separated and the species has not been reported from any intermediate localities, I am retaining the name *angulosa* for the specimens collected in Cuba. This species is closely allied to *porcata* Fabricius, but it is more slender, head more densely and coarsely punctured, anterior margin of pronotum not as deeply emarginate, abdomen beneath more finely punctured and more densely pubescent, prosternum more densely punctured, and the prosternal process much narrower in proportion to its length than in *porcata*.

POLYCESTA OLIVIERI Waterhouse

Buprestis depressa OLIVIER (not Linnaeus), Entomol., vol. 2, gen. 32, 1790,
pp. 39-40 (part), (name preoccupied).

Polycesta olivieri WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14,
1904, p. 255.—KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 511-513.

Female.—Elongate, broadly rounded in front, more attenuate behind, feebly flattened above and similar in shape to *angulosa* Jacquelin Duval; above dull brownish-cupreous, with an obscure greenish or purplish tinge; beneath aeneous, with a strong purplish or greenish reflection, the tibiae, tarsi and antennae bluish-green.

Head flat without any depressions on the front, but with a short obsolete longitudinal carina on the occiput; surface coarsely, deeply and densely punctate, the punctures very irregularly placed and more or less confluent, sparsely clothed with very fine erect inconspicuous hairs, the intervals very irregular in shape, smooth and convex on the top; epistoma truncate or obsoletely emarginate in front and feebly lobed on each side at the antennal cavities. Pronotum strongly transverse, two times as wide as long, narrower in front than behind, and widest just behind the middle; sides strongly obliquely expanded to just behind the middle, where they are broadly rounded, then strongly attenuate to near the posterior angles where they are nearly parallel for a short distance (in one of the specimens the sides are regularly arcuately rounded), the posterior angles acute and slightly projecting beneath the elytra; anterior margin feebly arcuately emarginate, without a median lobe; base feebly bisinuate or nearly transversely truncate; disk broadly but very feebly depressed; surface coarsely, deeply, and rather densely punctate, the punctures irregularly placed, much coarser and denser in the median depression and on the antero-lateral regions, where they are also more or less confluent, sparsely clothed with short inconspicuous hairs, and with the intervals subopaque. Scutellum subquadrate (in one specimen it is wider than long). Elytra feebly flattened on disk, declivous on the sides and about as wide as the pronotum at base; humeral angles obtusely angulated; sides obsoletely expanded behind the humeral angles, feebly sinuate at the posterior coxae, nearly parallel to the apical third, then arcuately attenuate to the tips, which are acutely rounded, the lateral margins strongly and irregularly serrate posteriorly; each elytron with 10 entire longitudinal rows of deep, round or subquadrate punctures, which are about equal distance from each other, and separated by narrow longitudinal costae, of which the second and fourth are more distinctly elevated than the others, there is also an additional row of finer punctures along the suture extending from the scutellum to basal fourth, and not separated

from the other rows of punctures by a costa; humeri obsolete. Abdomen beneath finely and densely punctuate, the punctures sparser on the median parts, but becoming much denser toward the sides, and rather densely clothed with short recumbent hairs, the intervals smooth and subopaque; first segment moderately convex, and without a densely punctated and pubescent spot at middle; last segment rather acutely rounded at apex. Prosternum strongly convex, surface finely, sparsely punctate, and sparsely clothed with long, very fine, erect hairs; anterior margin broadly rounded in front, with a broadly arcuate emargination at the middle; prosternal process short, moderately broad and with feeble marginal grooves, the sides nearly parallel to the middle of anterior coxal cavities, where they are emarginate and abruptly narrowed, the apex broadly rounded.

Male.—Not seen.

Length, 20–24 mm.; width, 6.5–8 mm.

Olivier (1790) had before him more than one species when he redescribed *Buprestis depressa* Linnaeus, but his figure is certainly that of *depressa* and he records specimens from South America, Antilles and Cayenne in the British Museum. Waterhouse (1904) states that the species described by Olivier as *depressa* is not the one described by Linnaeus under that name, so he proposes the new name *olivieri* for it, and states that there is in the British Museum a very old specimen bearing the name *depressa* which he believed is certainly the one mentioned by Olivier. At least some of the specimens which Olivier had before him were the true *depressa* as his figure and description applies to that species and not to the one which Waterhouse has given a new name. Waterhouse further states that the old specimens in the British Museum are without locality, but recent examples in the Museum and in Oberthür's Collection are from Jamaica.

I have been able to examine two females from the British Museum Collection, labeled simply Jamaica, and from which the above description was made. (One of these specimens has been donated to the United States National Museum collection.)

This species resembles *angulosa* Jacquelain Duval, but it is more flattened above, without scutellar costae, and the elytral punctures are much finer. From *depressa* Linnaeus and *thomae* Chevrolat, which also have the scutellar costae absent, it can be separated by the longitudinal costae on elytra not as distinctly elevated and the punctuation much finer.

POLYCESTA DEPRESSA (Linnaeus)

Buprestis depressa LINNAEUS, Mant. Plant., vol. 2, 1771, p. 533.—OLIVIER, Entomol. vol. 2, gen. 32, 1790, pp. 39–40 (part).

Buprestis porcata HERBST, (not Fabricius) Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 34–35, pl. 145, fig. 6.

Polycesta porcata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, pp. 2–3, pl. 1, fig. 1.

Polycesta karakera CHEVROLAT, Silbermann's Rev. Ent., vol. 5, 1838, pp. 54–55.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 404 (separates p. 54).

Polycesta depressa KERREMANS, Mon. Bupr., vol. 1, 1906, pp. 502–506, pl. 10, fig. 2.

Female.—Elongate, broadly rounded in front, more acuminate behind, feebly convex above and similar in shape to *angulosa* Jacquelín Duval; above dark metallic-green with the bottom of the punctures cupreous or purplish, and the entire surface more or less tinged with the same color when viewed in certain lights; beneath brilliant green, with strong cupreous and purplish reflections, the tibiae, tarsi and antennae cyaneous.

Head nearly flat without any depressions on the front, but with an obsolete longitudinal carina on the occiput; surface nearly glabrous, coarsely, deeply and rather densely punctuate, the punctures irregularly placed and widely separated on the median part, but becoming denser and more regularly placed along the eyes, the intervals irregular in shape, smooth and convex on the top; epistoma broadly, but not deeply arcuately emarginate in front. Pronotum strongly transverse, two times as wide as long, distinctly narrower in front than behind, and widest just behind the middle; sides strongly obliquely expanded from the apical angles to just behind the middle, where they are strongly obtusely angulated, then more feebly obliquely attenuate to the posterior angles, which are obtusely angulated and projecting beneath the elytra; anterior margin feebly arcuately emarginate, with a broad obsolete median lobe; base bisinuate, with a broad strongly angulated median lobe; disk with a broad subtriangular median depression, which is not deeply depressed, but sometimes with a fine longitudinal carina at the middle; surface very coarsely and deeply punctuate, the punctures variable in size, becoming confluent in the median depression and on the antero-lateral areas, but more widely separated on each side of the discal depression, the intervals subopaque. Scutellum subquadrate, wider behind than in front, and feebly convex. Elytra feebly convex, slightly wider than pronotum at base; humeral angles obtusely angulated; sides slightly arcuately expanded behind the humeral angles, feebly sinuate at posterior coxae, nearly parallel to apical third, then arcuately attenuate to the tips, which are conjointly narrowly

rounded, the lateral margins strongly and very irregularly serrate posteriorly; each elytron with four strongly elevated longitudinal costae, of which the first and second are more distinct and extending from the base to apex, the third more or less arcuate and extending around the humeral callosity, and the fourth more or less parallel with the lateral margin, uniting with the third at humeral callosity and extending to the margin near apex, the scutellar costa entirely absent; there are also nine or ten longitudinal rows of large, deep round punctures, which are arranged in double rows between the costae, the punctures more or less confluent, irregularly placed and forming a network of alveolus areas, the lateral margin coarsely and rather densely punctured; humeri feebly developed. Abdomen beneath finely and rather densely punctate, rather densely clothed with fine short recumbent hairs, which are shorter and sparser on the median part, but becoming denser toward the sides, the intervals smooth and shining; first segment moderately convex and without a densely punctured and pubescent spot at middle; last segment rather acutely rounded at apex. Prosternum moderately convex; surface coarsely, sparsely punctate, and sparsely clothed with a few fine inconspicuous hairs, anterior margin broadly obsoletely emarginate in front; prosternal process short, moderately broad, and with feeble marginal grooves, the sides nearly parallel to middle of anterior coxal cavities, where they are emarginate and abruptly narrowed, the apex rather broadly rounded.

Male.—Not seen.

Length, 18-24 mm.; width, 7-8.5 mm.

This species was originally described by Linnaeus (1771) from "Oriente." Olivier (1790) gives a figure of this species and records it from South America, Antilles and Cayenne, and states that specimens are in the British Museum. It is the species listed and figured by Herbst (1801) as *porcata* from Cayenne, Guiana, and the Antilles, and also by Castelnau and Gory (1837) under the same name from Guadeloupe. Chevrolat (1838) described this species as *karakera* from specimens collected at Pointe-à-Pitre, Guadeloupe, by Doctor Lherminier, and which he says is the same species figured by Castelnau and Gory as *porcata*, but is not the species described by Fabricius under that name. Fleutiaux and Sallé (1890) record specimens collected at Vieux Fort, Guadeloupe, by Vitrac on a climbing shrub (*Tecoma pentaphylla*). Kerremans (1906) records it from Cayenne, Santa Lucia, and Guadeloupe in the collection of the Paris Museum.

Through the kindness of the British Museum I have been able to examine two females from their collection, one labeled Antilles (Fairmaire) which had been compared and agrees with *Buprestis depressa* in the Linnean Collection by C. O. Waterhouse, and from which the above description was made; the other specimen is with-

out locality, but is labeled “*karakera* Chevr., compared with type (Saunders 74–18).” This specimen is more coarsely punctured, more brightly colored and more acuminate posteriorly, otherwise the two specimens are identical.

This species resembles *thomae* very closely, but it is more slender, more brightly colored, more acuminate posteriorly, and the elytral costae are more strongly elevated.

POLYCESTA THOMAE Chevrolat

Polycesta thomae CHEVROLAT, Silbermann's Rev. Ent., vol. 5, 1838, p. 55.—

WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 7, vol. 14, 1904, p. 254.—

KERREMANS, Mon. Bupr., vol. 1, 1906, p. 516.

Female.—Robust, broadly elongate, and similar to *porcata*, broadly rounded in front, more narrowly rounded behind and feebly convex above; color above aeneo-nigris, with a strong greenish and purplish tinge; beneath of the same color as above only more shining.

Head flat, broadly obsoletely depressed on the front, and transversely, narrowly depressed between the antennal cavities; occiput without longitudinal carina; surface coarsely, rather deeply and densely punctate, the punctures variable in size, irregularly placed, and more or less confluent, sparsely clothed with fine long erect hairs, the intervals irregular in shape, convex, smooth, and shining; epistoma broadly, but not deeply arcuately emarginate in front. Pronotum strongly transverse, two times as wide as long, slightly narrower in front than behind, and widest at basal third; sides strongly obliquely expanded from the apical angles to basal third, where they are broadly rounded, then strongly narrowed to the posterior angles, which are nearly rectangular; anterior margin deeply arcuately emarginate, with a broadly rounded median lobe, and the margin smooth and feebly elevated; base bisinuate, with the median lobe rather strongly angulated; disk with a broad, moderately deep median depression; surface coarsely, deeply and densely punctate, the punctures coarser, and more or less confluent in the median depression and toward the antero-lateral areas, sparsely clothed with a few moderately long recumbent hairs, the intervals densely granulose and subopaque. Scutellum subquadrate, wider behind than in front, and feebly elevated. Elytra feebly convex, about as wide as pronotum at base; humeral angles obtusely angulated; sides feebly expanded behind the humeral angles, sinuate at the posterior coxae, nearly parallel to apical third, then arcuately attenuate to the tips, which are conjointly broadly rounded, the lateral margins coarsely and irregularly serrate posteriorly: each elytron with four smooth longitudinal costae, of which the two discal ones are straight and more strongly elevated than the intercostae, the scutellar costa absent; there are also ten longitudinal rows of large deep elliptical

punctures which are arranged in double rows between the costae, the punctures more or less confluent, very variable in size and shape, and forming a network of alveolus areas, the sutural and lateral margins coarsely and densely punctate; humeri feebly developed. Abdomen beneath coarsely, densely punctate, and rather densely clothed with moderately long recumbent hairs, the intervals smooth and shining; first segment feebly convex, without a densely punctured and pubescent median spot; last segment rather broadly rounded at apex. Prosternum moderately convex; surface sparsely, coarsely punctate, and sparsely clothed with fine, moderately long, recumbent hairs; anterior margin feebly, broadly emarginate in front, with a small lobe on each side, and where the margin is feebly elevated; prosternal process short, very broad, feebly convex, and without marginal grooves, the sides parallel to middle of anterior coxal cavities, where they are emarginate and abruptly narrowed, the apex very broadly rounded.

Male.—Not seen.

Length, 20–25 mm.; width, 8–9.5 mm.

This species was described by Chevrolat (1838) from the island of St. Thomas. Kerremans (1906) records specimens from the same island in the collection of the British Museum and also in the Paris Museum. Kerremans has placed this species as a synonym of *porcata* Fabricius, but Waterhouse (1904) writes that the type of *thomae* is in the collection of the British Museum, and that it is distinct from *porcata*.

I have examined two females of this species, one from the collection of the British Museum simply labeled St. Thomas; the other in the collection of the American Museum of Natural History, from the same locality, collected during July, 1915, probably by C. Shoemaker. After carefully examining the above specimens, I agree with Waterhouse that it is distinct from *porcata*. The punctuation on the elytra is finer and more regular, the four costae on disk are distinctly elevated, and the scutellar costae are entirely absent.

Genus ACMAEODERA Eschscholtz

Acmaeodera ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint p. 8).—
SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 274–275, pl. 10,
fig. 7.—CASTELNAU and GORY, Mon. Bupr., vol. 1, 1835–1836, pp. 1–31,
pls. 1–9.—SPINOLA, Ann. Soc. Ent. France, ser. 1, vol. 7, 1838, p. 341.—
LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 66–68.—HORN, Trans. Amer.
Ent. Soc., vol. 7, 1878, pp. 2–27, pl. 1.—FALL, Journ. N. Y. Ent. Soc.,
vol. 7, 1899, pp. 1–37.—KERREMANS, Wytsman's Gen. Insectorum, fasc.
12, pt. 1, 1902, pp. 27–37; Mon. Bupr., vol. 2, 1906–1907, pp. 1–523,
pls. 11–16.

Head flat or feebly convex; front strongly narrowed by the insertion of the antennae; epistoma very short and emarginate in front;

antennal cavities rather large, deep, transverse, reniform, not concealed beneath a carina, and situated at some distance from the inner margin of the eyes. Antennae rather short, first joint long, feebly arcuate, and clavate at apex, second, third, and fourth short, subglobular, and subequal in length, fifth to tenth serrate, wider than long (sometimes serrate from the fourth joint), the eleventh joint oval. Eyes large, narrowly oval, feebly convex, parallel, or at most only obsoletely more widely separated on the vertex than at the front. Pronotum strongly transverse, variable in shape, often wider than the elytra, depressed, sulcate or convex at the middle, truncate at the base, which is longitudinally striate along the entire width. Scutellum not visible. Elytra variable in form, rounded or acuminate at the apex, with the sides serrate posteriorly. Sternal cavity formed entirely by the mesosternum, which is entire and emarginate in front. Prosternum wide, flat or convex, the anterior margin sinuate, emarginate, truncate, or lobed at the middle, and the prosternal process usually broadly rounded at apex. Posterior coxae dilated internally. Legs rather short and slender; tarsi rather robust, the fifth joint nearly as long as the preceding joints united; tarsal claws dentate.

This is a very large genus and at present contains about 300 species, which are distributed throughout the warmer regions of the entire world, with the exception of Australia, where they are replaced by the genus *Stigmodera*. The present paper includes 9 species, 4 of which are described as new.

The adults are usually found feeding on the pollen of various flowers, and since the color markings are so variable in some species, they are exceedingly difficult to identify. The species of this genus can be readily separated from all other West Indian Buprestidae by the scutellum being invisible.

KEY TO THE SPECIES

1. Antennae serrate from the fourth joint; subcylindrical species----- 2.
Antennae serrate from the fifth joint----- 3.
2. Elytral markings consisting of nine small yellow spots on each elytron, arranged in two rows, one lateral, the other near the suture; yellow spot on pronotum small and not attaining the base----- *subcylindrica* Fisher.
Elytral markings consisting of a small yellow spot near the scutellum, an oblong lateral area behind the humeri enclosing a dark spot, and three transverse fasciae behind the middle; yellow spot on pronotum large, extending over the entire postero-lateral area----- *jamaicensis* Fisher.
3. Pronotum distinctly wider than elytra----- 4.
Pronotum not wider than elytra----- 5.
4. First abdominal segment with a large yellow basal spot at middle; elytra orange-yellow, with the suture, apex and four transverse spots along lateral margin black, the black sutural area is also irregularly expanded, punctuation very coarse and deep, and the intervals very narrow and acute on top----- *marginenotata* Chevrolat.

- First abdominal segment without yellow basal spot; elytra black without discal markings, but with a yellow marginal band behind the humeri, and two transverse reddish-yellow fasciae near apex, which are more or less confluent, punctuation fine, the intervals at least as wide as the striae and flattened on top----- *favomarginata* (Gray).
5. Body robust and triangular, enlarged at base, and very acuminate posteriorly ----- 6.
- Body more slender and elongate, not triangular; elytra more parallel and not as strongly acuminate posteriorly ----- 8.
6. Sutural margin expanded and smooth on basal half; elytra without red apical spot ----- 7.
- Sutural margin not expanded on basal half; elytra with a fiery red apical spot ----- *cruenta* (Olivier).
7. Broadly triangular; elytra one and one-half times as long as the width at base, the maculation consisting of numerous small irregular yellow spots, which are confluent----- *pulcherrima* Jacquelin Duval.
- More elongate-triangular; elytra two times as long as the width at base, the maculation consisting of a yellow scutellar spot, and four irregular transverse yellow fasciae, which are more or less interrupted.
- wickhami Fisher.
8. Pronotum widest at basal third or middle----- *cubaecola* Jacquelin Duval.
- Pronotum widest at base----- *gundlachi* Fisher.

ACMAEODERA SUBCYLINDRICA, new species

Narrowly elongate, subcylindrical, strongly convex, broadly rounded in front and strongly attenuate behind; when viewed in profile, the surface beneath is nearly straight to the last ventral segment, where it is strongly attenuate, above feebly arcuate; piceous, with a strong purplish tinge; pronotum with an oval yellow spot on each side, narrowly separated from the lateral margin but not attaining the base or apex. Each elytron ornated with ten small irregular yellow spots arranged in two longitudinal rows, one along the lateral margin, the other on the disk; in the lateral row the spots are arranged as follows: a very small one at humeral angle, one just behind the humeri, third at the middle, fourth at apical third, fifth at apical fourth, and a small one at the apex; in the discal row they are arranged, one at the base, second at basal third midway between the second and third lateral spots, third behind the middle between the third and fourth lateral spots, and a very small spot connected externally to the fifth marginal spot. Color beneath similar to that above.

Head feebly convex, with a broad, oval, obsolete depression on the front and a short distinct elevated carina on the occiput; surface densely and very coarsely punctate, the punctures rather shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, bottom of punctures nearly smooth and from which arises a moderately long erect inconspicuous hair; epistoma very broadly arcuately emarginate in front. Antennae serrate from the

fourth joint; first joint elongate, slightly arcuate and longer than the second and third joints united, the surface shining and feebly granulose; second and third joints moniliform, surface similar to the first; fourth to tenth strongly triangular, wider than long, with the surface very densely granulose and subopaque; the eleventh oblong, slightly angulated on outer margin, with the surface similar to the preceding joint. (In the type the right antenna is deformed, and the fourth and fifth joints are consolidated.) Pronotum strongly transverse and moderately convex, one and four-fifths times as wide as long, narrower in front than at base, widest at basal third, with an obsolete depression in front of the scutellum, and a broad shallow one on each side along the base a short distance from the posterior angles, extending forward along the interior margin of the yellow spot but becoming obsolete at its anterior margin, causing the yellow spot to be arcuately elevated, in this depression close to the base there is also a round deep pit; sides arcuately rounded to basal third, then obliquely arcuately narrowed to the anterior margin, which is feebly arcuately emarginate, with a broadly rounded lobe at the middle; base transversely truncate; side margins narrow, and visible from above except near the apical angles; surface densely and very coarsely punctate similar to that of the head. Elytra moderately convex and slightly flattened on disk, as wide at base as pronotum; sides nearly parallel from base to just behind the middle, then arcuately attenuate to the tips, which are rather narrowly, conjointly rounded, the lateral margins strongly serrate posteriorly; humeri strongly developed; striae impressed, about as wide as the intervals on the disk at base, but becoming narrower toward apex, the punctures coarse, deep, oblong and separated from each other in the striae by about one-half their length; intervals not elevated, nearly smooth, with a single series of distant minute punctures, from which arises a rather long erect cinereous hair. Abdomen beneath rather densely, but not coarsely punctate, the punctures shallow, widely separated, and open on the one side, and from which arises a long semierect cinereous hair; intervals obsoletely granulose; last ventral segment rather broadly rounded at apex, and without a subapical carina. Prosternum more coarsely and deeply punctured than abdomen; anterior margin with an obsolete rectangular lobe at middle, which is nearly truncate in front; prosternal process parallel to behind coxae and about two times as wide as the coxal cavity.

Length, 6.5 mm.; width, 2.25 mm.

Type locality.—Cayamas, Cuba.

Other localities.—Camaguey, Cuba.

Type.—Cat. No. 26802, U.S.N.M.

Paratype.—Collection of S. C. Bruner.

Described from two specimens, probably both females. The type was collected by E. A. Schwarz, May 9, 1904, and a paratype received from S. C. Bruner, which was collected at Camaguey, Cuba, during July or August, 1920, by J. Kutz.

This is an elongate subcylindrical species and can be separated from all other West Indian species of this genus, except *jamaicensis*, by the antennae being serrate from the fourth joint. From *jamaicensis* it differs in having the yellow elytral spots arranged in two longitudinal rows, one along the lateral margin, the other near the suture.

ACMAEODERA JAMAICENSIS, new species

Male.—Narrowly elongate, subcylindrical, rounded in front, more acuminate posteriorly and feebly flattened above (nearly straight below and feebly arcuate above when viewed in profile); head and pronotum black, with a feeble aeneous tinge, the latter with a large triangular reddish-yellow spot, situated on each side at the posterior angles, extending internally for about one-third of the width of the pronotum, and along the lateral margin to near the apical angles; elytra black, with a slight purplish tinge, and each elytron ornated with yellow markings as follows: A small spot at base near scutellum, a large oblong area along lateral margin, extending from humerus to middle, and internally to about the middle of the elytron, and enclosing an oblong dark spot, a transverse fascia at apical third, an oblique one just behind it, and a small round spot at the apex; beneath aeneous, with a strong purplish tinge and more shining than above.

Head nearly flat, with an obsolete depression on the front, and a short elevated carina on the occiput; surface densely and coarsely punctate, the bottom of the punctures smooth, and from the center of each arises an erect inconspicuous hair, the intervals rather narrow, smooth and shining; epistoma broadly and deeply arcuately emarginate in front, forming a broadly rounded lobe on each side of the emargination; antennae serrate from the fourth joint, the serrate joints strongly transverse and acuminate at apex. Pronotum rather strongly transverse and moderately convex, nearly two times as wide as long, apex and base nearly equal in width, widest just behind the middle with a small foveate depression in front of the scutellum, and on each side in the yellow area a similar but deeper depression, situated a short distance from the base, there is also a broad obsolete depression extending from this fovea obliquely forward toward the lateral margin; sides arcuately rounded, slightly more obliquely in front than behind, the margins narrowly flattened and only partially visible from above; anterior margin feebly arcuately emarginate, with a distinct angulated median lobe; base

transversely truncate; surface densely and very coarsely punctate, the punctures shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, bottom of punctures smooth and from each arises a short erect inconspicuous hair. Elytra obsoletely flattened above, equal in width to the pronotum at middle, and rectangular at humeral angles; sides nearly parallel to behind the middle, (feeble sinuate at posterior coxae), then arcuately attenuate to the tips, which are conjointly rounded, the lateral margins serrate to near the base, the teeth fine at the basal regions, but becoming very coarse toward the apex; humeri strongly developed: surface striato-punctate, the striae on disk feebly impressed and wider than the intervals at base, becoming more deeply impressed and narrower toward the apex, the punctures large, very deep, and more or less confluent on the basal region, becoming finer and more shallow posteriorly, the intervals very narrow and somewhat constricted in front of middle, but much broaded toward the apex, the tops smooth, shining, and with a few fine, remotely placed punctures from which arises short erect black hairs. Abdomen beneath densely and coarsely punctate, the punctures deeply impressed on the basal segments, but becoming smaller, more widely separated and not as deeply impressed toward the apex, sparsely clothed with rather long recumbent cinereous hairs, the intervals smooth and shining; last ventral segment obtusely rounded at apex, and without a subapical carina. Prosternum very coarsely and rather densely punctate, and sparsely clothed with recumbent cinereous hairs; anterior margin with a very feeble median lobe, which is obsoletely arcuately emarginate in front; prosternal process parallel to behind the anterior coxal cavities, scarcely two times as wide as the cavities, and broadly rounded at the apex.

Length, 7.5 mm.; width, 2.75 mm.

Type locality.—Jamaica.

Type.—British Museum.

This species is described from a single male received through the kindness of the British Museum. It is simply labeled Jamaica without any additional data and was received under the manuscript name *jamaicensis*, which I have retained for the species.

It is one of the elongate subcylindrical species and can be separated from all the other West Indian species of this genus, except *subcylindrica* Fisher, by the antennae being serrate from the fourth joint. From that species it can be distinguished by the yellow elytral markings, which are not broken up into two longitudinal rows of small spots, but has a large lateral area behind the humeri enclosing a dark spot and with transverse fasciae toward the apex.

ACMAEODERA MARGINENOTATA Chevrolat

Acmaeodera marginenotata CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 583-584 (separate pp. 159-160).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 167, no. 809.—KERREMANS, Mon. Bupr., vol. 2, 1906, pp. 56-57.

Acmacodera cubaccola FALL, Journ. N. Y. Ent. Soc., vol. 7, 1899, p. 35. (Not *cubaccola* Jacquelain Duval.)

Broadly elongate, feebly triangular, broadly rounded in front, more attenuate posteriorly, and feebly flattened above (nearly straight below and broadly arcuate above when viewed in profile); head and pronotum black, with a slight purplish tinge, the latter with a large triangular yellow spot, situated on each side at the posterior angles; elytra orange-yellow, the suture, apex, and four transverse spots along the lateral margin black, the black color along suture is also expanded into numerous irregular fasciae, which sometimes extend to the middle of the elytron; beneath black, with a strong aeneo-viridis reflection, and ornated with a large round median yellow spot at base of first abdominal segment.

Head flat, with a short elevated carina on the occiput; surface coarsely and densely punctate, the punctures rather shallow, nearly confluent, and from the center of each arises a rather long semi-erect cinereous hair, the intervals narrow and feebly shining; epistoma strongly elevated, very short, and narrow on the top, the anterior margin broadly and very deeply arcuately emarginate in front, and the lobes on each side of the emargination subtruncate and strongly compressed; antennae serrate from the fifth joint. Pronotum strongly transverse and moderately convex, twice as wide as long, distinctly narrower in front than behind, widest just behind the middle, with three large deep basal depressions, one median, and one on each side at the inner margin of the yellow spot, there is also a narrow transverse depression along the anterior margin, more or less interrupted at the middle; sides strongly obliquely expanded to the middle, then strongly arcuately rounded to the posterior angles, which are rectangular, the margins feebly flattened posteriorly and visible from above; anterior margin arcuately emarginate, with a strongly angulated median lobe; base transversely truncate; surface densely, coarsely and very deeply punctate, the punctures confluent and irregular in shape, with their sides acute on the top and forming a network of polygonal areas, bottom of punctures obsoletely granulose, and from which arises a short, semi-erect black hair. Elytra convex, feebly flattened on top, and sharply deflexed on the sides, distinctly narrower than the pronotum at middle, the humeral angles when viewed laterally are bent downward into a narrow lobe; sides when viewed from above are feebly obliquely narrowed to the apical third, then arcuately

attenuate to the tips, which are conjointly broadly rounded, the lateral margins rather coarsely serrate from apex to the posterior coxae; humeri feebly developed; surface with a more or less distinct costa on each side at the lateral declivity, the sutural margins rugose, with a strongly elevated carina at the middle, and without any visible suture between the elytra, the surface is also striato-punctate, the striae very wide, the punctures coarse, extremely deep and nearly connected in the striae, the intervals between the striae very narrow, acute on top, with the surface coarsely granulose, and clothed with a few remotely placed, coarse, erect black hairs, the striae becoming broader and more convex on the lateral deflexed areas. Abdomen beneath densely and coarsely punctate, the punctures deep and nearly confluent on the basal segments, becoming more shallow toward the apex, sparsely clothed with long recumbent cinereous hairs, and with the intervals obsoletely granulose; last segment broadly rounded at apex, without a subapical carina. Prosternum coarsely, densely punctate, and sparsely clothed with recumbent cinereous hairs, intervals coarsely and finely granulose; anterior margin with a distinct median lobe, which is elevated and feebly arcuately emarginate in front; prosternal process strongly convex, parallel to behind the anterior coxal cavities, about two times as wide as the cavities, and very broadly rounded at the apex.

Length, 7.5 mm.; width, 3.5 mm.

Described by Chevrolat (1867) from Cuba and recorded by him from the central part of the island, from material in the collections of Gundlach and Poey. Gundlach (1891) reports collecting it on the flowers of a shrub at Caimanera and Cienfuegos. Kerremans (1906) records it from Cuba but states that the species is unknown to him. This species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 809 in the Gundlach Museum in Habana, which has not been available for study.

This species seems to be very rare in collections and I have not seen any specimens of it from the West Indies, but there is a specimen in the United States National Museum from Key Largo, Florida, which agrees with the description given by Chevrolat, and from which the above description was made. It is a very distinct species, extremely coarsely and deeply punctate, sides of the elytra strongly deflexed at lateral margins, humeral angles produced into a narrow lobe, and with a large yellow basal spot at middle of the first abdominal segment. In the specimen examined the elytra seem to be connate, as no suture could be seen between the two elytron, but on account of it being a unique specimen, no dissections could be made. This is the specimen recorded by Fall (1899) as *cubaecola* Jacquelin Duval, based on an identification made by Linell.

ACMAEODERA FLAVOMARGINATA (Gray)

Buprestis flavomarginata GRAY, Griffith's Anim. Kingd., vol. 14, 1832, p. 358, pl. 31, fig. 2.

Acmaeodera flavomarginata CHEVROLAT, Coléoptères du Mexico, Cent. 1, 1834.—CASTELNAU and GORY, Mon. Bupr., vol. 1, 1835, pp. 2—3, pl. 1, fig. 2.—SAUNDERS, Catal. Bupr., 1871, p. 79.—HORN, Trans. Amer. Ent. Soc., vol. 7, 1878, p. 8, pl. 1, fig. 4.—WATERHOUSE, Biol. Centr.—Amer. Coleopt., vol. 3, pt. 1, 1882, p. 21; 1889, p. 178.—FALL, Journ. N. Y. Ent. Soc., vol. 7, 1899, p. 8.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405 (separates p. 55).—KERREMANS, Mon. Bupr., vol. 2, 1906, pp. 31—34.

Acmaeodera proxima WATERHOUSE, Biol. Centr.—Amer. Coleopt., vol. 3, pt. 1, 1889, pp. 178—179.

Acmaeodera contigua KERREMANS, Mem. Soc. Ent. Belg., vol. 6, 1897, p. 42.

Elongate, feebly triangular, broadly rounded in front, more acuminate posteriorly, and feebly flattened above (nearly straight beneath and moderately arcuate above when viewed in profile); piceous, with a slight aeneous tinge; pronotum with a lateral yellow longitudinal band, not quite touching the lateral margin, and sometimes abbreviated anteriorly; elytra without discal markings, but with a yellow marginal band extending from the humeri to a little behind the middle, and becoming slightly wider posteriorly, and with two transverse reddish or yellowish fasciae near the apex, the two fasciae sometimes connected, forming a broad band, and enclosing one or more small dark spots; beneath more shining than above.

Head nearly flat, with a broad, moderately deep, oval depression on the front, and forming two more or less distinct elevations; occiput with a longitudinal carina extending to the frontal depression; surface densely and coarsely punctate, the punctures rather deep, irregular, and nearly confluent, the sides forming a network of polygonal areas, bottom of punctures smooth and from the center of which arises a long erect inconspicuous hair; epistoma broadly and deeply triangularly emarginate in front, with the lateral angles broadly rounded; antennae serrate from the fifth joint. Pronotum strongly transverse and moderately convex, two and one-half times as wide as long, distinctly narrower in front than behind, widest at basal sixth, with a large, rather deep median depression, which is broader posteriorly, and with a small very deep depression on each side near the base, about midway between the middle and lateral margin; sides obliquely expanded from apical angles to basal sixth, where they are arcuately rounded, the margins rather broadly flattened and visible from above; anterior margin deeply arcuately emarginate, with a broadly rounded lobe at the middle; base transversely truncate, the posterior angles obtusely rounded; surface densely, coarsely and regularly punctate, the punctures well separated on the disk, but becoming denser and more confluent toward

the sides, and from each puncture arises a long erect inconspicuous hair. Elytra slightly flattened on disk, not quite as wide as pronotum; humeral angles obtusely angulated; sides feebly obliquely narrowed to behind the middle, then arcuately attenuate to the tips, which are conjointly acutely rounded, the lateral margins coarsely serrate posteriorly; humeri strongly developed; surface striato-punctate, the striae impressed, nearly as wide as the intervals on the disk at base, becoming much narrower toward the apex, and rather widely separated at the sides, the striae punctures deep, coarse, and separated by about their own diameter, becoming finer and more oblong toward the apex; intervals flat on the disk, more convex laterally, with a single row of distant minute punctures, from which arises a rather long erect inconspicuous hair, the fifth interval costate, sometimes obsolete apically, but it is always distinct at the base. Abdomen beneath rather densely but not coarsely punctate, the punctures shallow and open posteriorly, and sparsely clothed with long inconspicuous hairs, the intervals smooth and shining; last ventral segment broadly rounded at apex, without a distinct subapical carina. Prosternum more coarsely and deeply punctate than the abdomen; anterior margin feebly arcuately emarginate at the middle, with a distinct lobe on each side of the emargination; prosternal process parallel to behind the anterior coxae, nearly three times as wide as the coxal cavity, and feebly broadly rounded at apex.

Length, 8–13 mm.; width, 3.2–4.75 mm.

This species was described originally by Gray (1832) from Brazil. Saunders (1871), and Fleutiaux and Sallé (1890) record it from Guadeloupe. Waterhouse (1889) described the same species from Mexico as *proxima*, and Kerremans (1897) also described the species from Guadeloupe under the name of *contigua*. Only two specimens of this species from the West Indies have been examined, and both of these were received from the British Museum, one labeled "Guadeloupe (Fairm)," the other Guadeloupe (Plason) and labeled type of *contigua* Kerremans.

The species is widely distributed from Texas southward to Brazil, but so far, has only been recorded from one of the West Indian Islands. In a species so widely distributed, a great variation would naturally be expected, but the only variation seen in a series of specimens examined from widely separated regions, is that of the transverse reddish or yellowish fasciae near the apex of the elytra, and which has caused it to be described under a number of different names. In some specimens the two fasciae are distinctly separated, while in others they are more or less connected, forming a broad band and enclosing one or more small dark spots.

ACMAEODERA CRUENTA (Olivier)

Buprestis cruenta OLIVIER, Entomol., vol. 2, gen. 32, 1790, pp. 48-49, pl. 3, fig. 21.

Acmaeodera cruenta CASTELNAU and GORY, Mon. Bupr., vol. 1, 1835, p. 2, pl. 1, fig. 1.—MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, p. 24.—KERREMANS, Mon. Bupr., vol. 2, 1906, pp. 50-53.

Robust, rather short, strongly triangular, broadly rounded in front, more acuminate posteriorly, and feebly flattened above, nearly straight beneath and moderately arcuate above when viewed in profile; head and pronotum aeneous, the latter with a large triangular reddish-yellow spot, situated on each side along the lateral margin, broader posteriorly and not reaching to the apical angles; elytra black, with a strong bluish or greenish tinge, each elytron with an oblong reddish-yellow spot near apex and ornated with from seven to nine rather large irregular yellow spots arranged in two longitudinal rows, one near the suture, the other along the lateral margin, the spots in the lateral row usually consists of a very small one at humeral angle, and three transverse ones, one at the basal third, one at the middle, and the other at the apical third, those in the sutural row vary in number from four to five, irregular in size, and not always arranged in a straight line; beneath aeneous, with a distinct olivaceous tinge, and more shining than above.

Head flat, with a distinct longitudinal carina on the occiput; surface densely and coarsely punctate, the punctures rather deep, irregular, and nearly confluent, smooth in the bottom, and from the center of which arises a long, erect inconspicuous hair, the intervals smooth and shining; epistoma broadly arcuately emarginate in front, forming a broadly rounded lobe on each side of the emargination; antennae serrate from the fifth joint. Pronotum strongly transverse and moderately convex, two and one-fourth times as wide as long, distinctly narrower in front than behind, widest at base, with a broad triangular obsolete depression at the middle along the base, and on each side a round, deep, foveate depression, situated a certain distance from the base and at the inner margin of the lateral yellow spot, which is gibbose; anterior margin very deeply arcuately emarginate, with an obsolete median lobe; sides arcuately expanded from the anterior margin to posterior angles, which are obtuse, the margins narrowly flattened, bent under posteriorly, and not visible from above, except toward the apical angles; base transversely truncate; surface densely and deeply punctate, the punctures fine and rather widely separated on the disk, and becoming much coarser and more confluent at the sides, especially on the yellow spaces, sparsely clothed with long, erect, inconspicuous hairs, intervals smooth and shining. Elytra slightly concave on disk, and abruptly declivous on the sides and at apex, and slightly wider than pronotum at base:

humeral angles obtusely angulated; sides obliquely attenuate to apical third, then more arcuately attenuate to the tips, which are conjointly acutely rounded, the lateral margins coarsely serrate posteriorly; humeri strongly developed; surface striato-punctate, in the concave area the striae are deeply impressed, about one-fourth as wide as the intervals, and the punctures fine, elongate and confluent in the striae, toward the sides the striae are feebly impressed, nearly as wide as the intervals, and the punctures very coarse, and more or less confluent; intervals flat on the disk, becoming more convex laterally, and with a row of fine, densely placed punctures, from the center of which arises a long erect black hair. Abdomen beneath densely, finely and rather regularly punctate, and sparsely clothed with short erect cinereous hairs, intervals smooth and shining; second segment with a round obsolete depression at middle along anterior margin; last segment broadly rounded at apex; without a subapical carina. Prosternum punctate similar to that of the abdomen; anterior margin with a distinct median lobe, which is deeply arcuately emarginate in front; prosternal process parallel behind the anterior coxae, at least two times as wide as the coxal cavity, and broadly rounded at apex.

Length, 8–11 mm.; width, 4–5 mm.

Originally described by Oliver (1790) from Santo Domingo. Mannerheim (1837) records it from the same island on the foliage of *Crotinus cascarillae*, and from all accounts the distribution of this species is restricted to that island. The following material has been examined. Coll. U. S. Nat. Mus.: One specimen from Port-au-Prince, Haiti (W. L. Rockwell), and another one from the same locality collected by R. J. Crew, and received from H. F. Wickham. Coll. British Museum: One specimen, Haiti (Saunders 74–18); one labeled simply St. Domingo, and a third specimen, labeled Haiti (Mus. Paris, Chevrolat Coll.).

In size and form this species resembles *pulcherrima* Jacquelin Duval, but it can be easily separated from that species by the elytra having the apex fiery red, and the yellow markings arranged in two longitudinal rows on each elytron.

ACMAEODERA CUBAEOLA Jacquelin Duval

Acmaeodera cubaeola JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat de l'ile de Cuba, Anim. Artic., 1857 (French Edition), pp. 57–58; (Spanish Edition) vol. 7, 1857, pp. 26–27.—CHREVOLAT. Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 583 (separates, p. 159).—GUNDLACH, Contribution à la Entomol., Cuba, vol. 3, pt. 5, 1891, p. 167, no. 1414.—KERREMANS, Mon. Bupr., vol. 2, 1906, pp. 61–63, pl. 11, fig. 5.

Narrowly elongate, subcylindrical, rounded in front, more acuminate posteriorly, and strongly convex above, sinuate below and

feebly arcuate above when viewed in profile; head and pronotum nigro-aeneous, the latter with a more or less triangular yellowish spot, situated on each side along the lateral margin, and not quite reaching to the posterior angles nor anterior margin; elytra nigro-aeneous, with a strong cyaneous or purplish tinge, and ornated with numerous small yellow spots, which are arranged on each elytron as follows: A small round one at base near scutellum, a narrow longitudinal one along lateral margin behind humerus, and strongly sinuate on the inner margin, four small ones on median part, arranged obliquely in pairs, and a small spot near the apex, sometimes the spots more or less confluent, and with an additional one along the suture in front of apex; beneath aeneous, with a strong cupreous or brownish tinge.

Head flat, with a short elevated carina on the occiput; surface coarsely and densely punctate, the punctures more or less confluent, and the sides forming a network of polygonal areas, the bottom of the punctures smooth, and from the center of each puncture arises an erect inconspicuous hair; epistoma broadly and rather deeply arcuately emarginate in front, forming an arcuately rounded lobe on each side of the emargination; antennae serrate from the fifth joint. Pronotum moderately transverse, and rather strongly convex, one and one-half times as wide as long, distinctly narrower in front than behind, widest at basal third, with an obsolete depression at middle along base, and on each side near the inner margin of the yellow space a deep foveate depression, situated a short distance from the base; sides obliquely expanded to basal third, where they are arcuately rounded to the posterior angles, which are nearly rectangular and bent downward, the margins not flattened, and visible from above; anterior margin arcuately emarginate, with a broadly rounded median lobe; base transversely truncate; surface densely and very coarsely punctate, the punctures shallow, nearly confluent, and the intervals smooth and shining, rather densely clothed with short erect inconspicuous hairs. Elytra convex, equal in width to pronotum at base, and rectangular at humeral angles; sides parallel to near apical third, then obliquely attenuate to the tips, which are conjointly obtusely rounded, the lateral margins rather strongly serrate posteriorly; humeri strongly developed; surface striato-punctate, the striae on disk feebly impressed and wider than the intervals anteriorly, becoming more deeply impressed and much narrower toward the apex, the punctures large, round and placed close together in the striae on the basal half, but becoming much smaller posteriorly, the intervals with a single row of remotely placed small punctures, and with a few short erect hairs. Abdomen beneath densely and coarsely punctate, the punctures

deeply impressed on the basal segments, but becoming more shallow toward the apex, and rather densely clothed with long recumbent cinereous hairs, intervals smooth and shining; last segment broadly rounded or subtruncate at apex, without a subapical carina. Prosternum coarsely, densely punctate, and sparsely clothed with long recumbent hairs; anterior margin with a very feeble median lobe, which is truncate in front; prosternal process parallel to behind the anterior coxal cavities, and broadly rounded at the apex.

Length, 8.5–10 mm.; width, 2.75–3.5 mm.

Described by Jacquelin Duval (1857) from Cuba. Chevrolat (1867) records it from the eastern part of the same island from material in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records collecting it on a flowering shrub at Caimanera, Cuba, during July. Kerremans (1906) has placed *cubaecola* listed by Fall¹³ from Key Largo, Florida, and *pulcherrima* by the same author¹⁴ from Metacumbe Key, Florida as synonyms of *cubaecola*, but the one listed by Fall as *cubaecola* is the species described by Chevrolat as *marginenotata*.

I have been able to examine two specimens of this species from the collection of the Academy of Natural Sciences, labeled Cuba (Poey Coll. No. 348), which agree with the original description, and from which the above description was made. (One of these specimens has been donated to the U. S. Nat. Mus. Coll.). There are also two examples of this species labeled No. 1419 in the Gundlach Museum in Habana, and a single example in the British Museum, which have not been examined by the writer.

The species is closely related to *confusa* Fisher, but is more parallel and subcylindrical, more convex above, pronotum not sulcate at base, and the markings on the elytra are more irregular and not arranged in two longitudinal rows of distinct round spots.

ACMAEODERA CONFUSA, new name

There seems to have been considerable confusion in the identification of this species by Kerremans, since *pulcherrima* and *cubaecola* listed by Fall are two radically different species, but neither one is the species described by Jacquelin Duval as *cubaecola*. Kerremans probably did not see the true *cubaecola* from the Antilles, as he redescribed and figured specimens from the Fenyes collection from Key Largo, Florida, which are identical with the specimens listed by Fall as *pulcherrima* from Metacumbe Key, Florida. For the one described and figured by Kerremans as *cubaecola* and listed by Fall as *pulcherrima*, I therefore propose the new name *confusa*.

¹³ Journ. N. Y. Ent. Soc., vol. 7, 1899, p. 35.

¹⁴ Idem, p. 16.

ACMAEODERA PULCHERRIMA *Jacquelin Duval*

Acmaeodera pulcherrima JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat de l'île de Cuba, Anim. Arctic., 1857 (French Edition), pp. 56-57; (Spanish Edition) vol. 7, 1857, p. 26.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 583 (separates p. 159).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 166-167, no. 808.—FALL, Journ. N. Y. Ent. Soc., vol. 7, 1899, p. 16.—KERREMANS, Mon. Bupr., vol. 2, 1906, pp. 53-54, pl. 11, fig. 3.

Robust, rather short, strongly triangular, broadly rounded in front, more acuminate posteriorly, and rather moderately convex above (nearly straight or at most only feebly arcuate beneath, and strongly arcuate above when viewed in profile); head and pronotum aeneous, with a slight cupreous tinge, the latter with an irregular reddish-yellow spot, situated on each side along the lateral margin, broader posteriorly and not quite reaching to the posterior nor apical angles; elytra black, with an aeneous, greenish or cupreous tinge, and ornated with numerous small irregular yellow markings, which are variable in size and shape, and giving the surface a variegated or marbled appearance; beneath aeneous, with a strong cupreous tinge, and more shining than above.

Head flat, feebly depressed on the front, and with a distinct longitudinal carina on the occiput; surface densely and coarsely punctate, the punctures not very deep, smooth in the bottom, and from the center of each arises a short, erect inconspicuous hair, the intervals smooth and shining; epistoma broadly arcuately emarginate in front, forming an acutely rounded lobe on each side of the emargination; antennae serrate from the fifth point. Pronotum strongly transverse, and moderately convex, two and one-half times as wide as long, distinctly narrower in front than behind, widest at base, with an obsolete longitudinal median sulcus, a narrow transverse depression along the anterior margin, broadly interrupted at the middle, and on each side along the inner margin of the yellow space, a broad obsolete depression, extending to a round deep fovea situated a certain distance from the base; sides strongly obliquely expanded from the anterior margin to the posterior angles, which are nearly rectangular, the margins narrowly flattened and bent under posteriorly, and not visible from above except toward the apical angles; anterior margin actuately emarginate, with an obsolete median lobe; base transversely truncate; surface densely and deeply punctate, the punctures fine and distinctly separated on the disk, becoming much coarser and more or less confluent toward the side, and sparsely clothed with short erect inconspicuous hairs, the intervals smooth and shining. Elytra convex, slightly wider than pronotum at base, the sutural intervals broadly expanded on the basal half, the disk convex, smooth and shining; humeral angles nearly rectangular; sides

obliquely attenuate to the apical third, then more arcuately attenuate to the tips, which are acute, the lateral margins coarsely serrate posteriorly; humeri strongly developed; surface striato-punctate, the striae on disk feebly impressed on basal region, about as wide as the intervals, but becoming more deeply impressed and distinctly narrower than the intervals toward the apex, the punctures very coarse and nearly confluent anteriorly; intervals smooth and shining, with a few fine punctures, from which arises a short recumbent hair. Abdomen beneath densely, rather coarsely and regularly punctate, and sparsely clothed with short recumbent cinereous hairs, intervals smooth and shining; last ventral segment broadly rounded at apex, and without a subapical carina. Prosternum punctured similar to that of the abdomen; anterior margin with a distinct median lobe, which is deeply arcuately emarginate in front; prosternal process parallel to behind the anterior coxal cavities, at least two times as wide as the cavity, and broadly rounded at the apex.

Length, 9–12 mm.; width, 4.5–5.5 mm.

This species was described by Jacquelín Duval (1857) from Cuba. Chevrolat (1867) records it from the central and eastern part of the same island, from material in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records collecting adults on the flowers of a shrub at Caimanera and also at the Bay of Guantanamo, Cuba. Fall (1899) records three specimens of this species in the collection of the United States National Museum from Metacumbe Key, Florida, based on identifications made by Linell. These specimens are not the species described by Jacquelín Duval as *pulcherrima*, but are *confusa* Fisher. Kerremans (1906) records it from Cuba, in the collection of the Brussels Museum.

Specimens have been examined from the following Cuban localities. Coll. U. S. Nat. Mus.: One specimen, Santiago (J. M. Espin). Coll. Amer. Mus. Nat. Hist.: One specimen, Rio Seco, San Carlos Estate, Guantanamo (Chas. T. Ramsden). Coll. British Mus.: One specimen, Cuba (Coll. Chevrolat); and another one without a locality, and simply labeled "Saunders 74–18." Coll. Acad. Nat. Sci. Phila.: Two specimens, Cuba (Poey Coll. No. 931). There are also two specimens labeled No. 808 in the Gundlach Museum in Habana, which have not been examined.

There has been considerable confusion in regard to the identification of this species and *cubaecola*, but the two species are distinctly different, *pulcherrima* is a very broad, triangular species, with the pronotum widest at base, while *cubaecola* is narrow, elongate, and subcylindrical, the pronotum widest at middle or basal third, the sutural intervals broadly expanded on basal half, and the color markings on the elytra are differently arranged.

ACMAEODERA WICKHAMI, new species

Acmaeodera cubaecola WICKHAM, Canad. Entomol., vol. 27, 1895, p. 295
(not *cubaecola* Jacquelin Duval).

Male.—Rather broadly elongate, feebly triangular, broadly rounded in front, strongly acuminate posteriorly and moderately convex above (feebly sinuate below and broadly arcuate above when viewed in profile); head and pronotum aeneous, with a strong cupreous or purplish tinge, the latter with a large, more or less triangular yellow spot situated on each side along the lateral margin, broader and more elevated posteriorly, not touching the lateral margin, nor extending to the anterior or posterior angles; elytra black, with a purplish, greenish or bluish tinge, and each elytron ornated with yellow markings as follows: A small round spot at humeral angle, a transverse one at base near scutellum, a narrow, irregular transverse fascia at basal fourth, a similar one at middle, a more arcuate one at apical third, and a smaller one near the apex, all of these fasciae are more or less interrupted; beneath aeneous, with a strong cupreous or purpureous reflection, and more shining than above.

Head flat, with a short elevated carina on the occiput; surface densely and coarsely punctate, the punctures shallow, more or less confluent, and the sides forming a network of polygonal areas, the bottom of the punctures smooth and with a short erect hair at the middle, the intervals narrow, irregular in shape, smooth and shining on the top; epistoma broadly and deeply arcuately emarginate in front, forming a broadly rounded lobe on each side of the emargination; antennae serrate from the fifth joint. Pronotum strongly transverse and moderately convex, two and one-third times as wide as long, distinctly narrower in front than behind, widest at base, with an obsolete impression in front of the scutellum, a narrow transverse depression along anterior margin, broadly interrupted at the middle, and on each side near the inner margin of the yellow spot, a deep foveate depression situated a short distance from the base, and a broad obsolete depression extending obliquely toward the lateral margin; sides obliquely and feebly arcuately expanded from anterior margin to the posterior angles, which are rectangular and bent under, the margins narrowly flattened and only visible anteriorly from above; anterior margin strongly arcuately emarginate, with a feebly rounded median lobe; base transversely truncate; surface densely and coarsely punctate, the punctures well separated on the disk, but becoming more or less confluent toward the sides, bottom of punctures finely granulose and from which arises a short, erect inconspicuous hair, intervals smooth and shining. Elytra strongly convex anteriorly, feebly flattened along suture near apex, slightly wider than pronotum at base, and rectangular at the humeral angles;

sides arcuately expanded behind the humeral angles, then arcuately attenuate to the tips (feebly sinuate at posterior coxae), apex rather broadly rounded, lateral margins coarsely serrate posteriorly; humeri strongly developed; surface striato-punctate, the striae on disk wider than the intervals at the basal region, feebly impressed except on the flattened space near apex, where they are more deeply impressed, the punctures large, deep, and closely placed in the striae, the intervals smooth, with a single row of remotely placed fine punctures, from which arises a very short erect hair, sutural intervals broadly expanded at the basal half. Abdomen beneath coarsely and densely punctate, the punctures smaller and less impressed on the apical segments sparsely clothed with rather long recumbent cinereous hairs, intervals smooth and shining; last segment subtruncate at apex, without a subapical carina. Prosternum punctuation similar to that of the abdomen; anterior margin with a distinct median lobe, which is broadly arcuately emarginate in front; prosternal process parallel to behind the anterior coxal cavities, scarcely two times as wide as the cavities, and broadly rounded at the apex.

Length, 8–8.5 mm.; width, 3.5–3.75 mm.

Type locality.—Eleuthera, Bahamas.

Type and paratype.—Cat. No. 26803, U.S.N.M.

Described from two males collected by H. F. Wickham on the island of Eleuthera, one of the Bahamas, between July 9 and 15, and is the species recorded by him in the Canadian Entomologist as *cubaecola* Jacquelain Duval.

This is one of the subtriangular species, not as broadly triangular as *cruenta* and *pulcherrima*, but more so than *gundlachi* Fisher, and can be separated from the other species of the genus found in the West Indies by the characters given in the key.

ACMAEODERA GUNDLACHI, new species

Male.—Rather broadly elongate, subcylindrical, broadly rounded in front, more strongly attenuate posteriorly, and feebly flattened above, nearly straight below and broadly arcuate above when viewed in profile, aeneous, with a strong purplish or greenish tinge on the pronotum and elytra, the former with an oblong yellow spot on each side, which does not attain the base nor apex; each elytron ornated with small irregular yellow spots as follows: A rather large irregular spot behind the humerus, extending along the inner margin, but more or less broken along the lateral margin, a small round spot behind the humerus, situated closer to the suture than the lateral margin, a rather wide transverse arcuate fascia at middle, extending from the lateral margin to middle of disk, then turning obliquely forward for a short distance, a narrow transverse fascia at apical third, extending nearly to the suture, a narrow oblique one at apical

fifth, and a small spot near the apex. Beneath aeneous, with a strong purplish tinge.

Head nearly flat, with a broad obsolete depression on the front, and a very short elevated carina on the occiput; surface densely and coarsely punctate, the punctures rather shallow, and narrowly separated from each other, and from each puncture arises a rather long, erect inconspicuous hair, the intervals smooth; epistoma broadly and deeply arcuately emarginate in front, forming an obtusely angulated lobe on each side of the emargination; antennae serrate from the fifth joint. Pronotum strongly transverse, moderately convex, two times as wide as long, distinctly narrower in front than behind, widest at base, with a narrow obsolete depression along the anterior margin, broadly interrupted at the middle, and with three more or less obsolete basal depressions, one median, and one on each side at the inner margin of the yellow spot, which is not elevated; sides obliquely expanded from anterior margin to posterior angles, which are rectangular, the margins very narrowly flattened, and not visible posteriorly from above; anterior margin feebly arcuately emarginate, with a distinct angulated lobe at middle; base transversely truncate; surface densely and coarsely punctate, the punctures finer and more widely separated on the disk, becoming coarser, deeper, and more narrowly separated toward the sides, and from each puncture arises a long, erect inconspicuous black hair, intervals smooth and shining. Elytra moderately convex, slightly flattened on the disk posteriorly, slightly wider than pronotum at base; sides slightly expanded behind the humeral angles, feebly sinuate and obliquely attenuate to the apical third, then rather strongly arcuately attenuate to the tips, which are conjointly, rather broadly rounded, the lateral margins coarsely serrate, the teeth irregular and widely separated; humeri strongly developed; surface striato-punctate, the striae impressed toward the apex, about as wide as the intervals on the basal region, but becoming narrower on the flattened apical areas, the punctures large, deep, and irregularly placed in the striae, becoming finer and more elongate near the apex, the intervals not elevated, smooth, and with a single row of distant punctures, from which arises a rather long, semierect hair. Abdomen beneath sparsely and rather finely punctate, the punctures much coarser and more widely separated on the basal segment, becoming finer toward the apical segment, and rather densely clothed with long semierect cinereous hairs, intervals smooth; last segment subtruncate at apex, and without a subapical carina. Prosternum coarsely and densely punctate, and sparsely pubescent; anterior margin with a narrow rectangular lobe at middle, which is elevated and truncate in front; prosternal process parallel to behind the anterior coxal cavities, nearly three times as wide as the cavities, and very broadly rounded at the apex.

Length, 8.5 mm.; width, 3.5 mm.

Type locality.—Guanica, Porto Rico.

Other localities.—Anasco, Santa Rita, Tallaboa, Aibonito, and Martin Pena, all in Porto Rico.

Types and paratypes.—Cat. No. 26804, U.S.N.M.

Paratypes also in American Museum Natural History; Carnegie Museum; Academy Natural Sciences, Philadelphia; British Museum; Porto Rico Experimental Station at Rio Pedras; and also in the collection of G. B. Merrill.

This species is described from a series of 15 specimens collected at the following localities in Porto Rico. The type and paratypes A, B, and C, collected at Guanica, April 15, 1914, by G. B. Merrill; paratype D, collected at the same locality June 5, 1920, by G. N. Wolcott; paratypes E, F, and G, collected at Anasco, September, 1913, by E. G. Smyth; paratypes H and I, collected at Santa Rita, July, 1913, by E. G. Smyth; and paratypes J, K, and L, collected at Martin Pena, July 10, 1917, by R. T. Cotton. Coll. Amer. Mus. Nat. Hist.: Paratype M collected at Aibonito, July 15, 1914, by F. E. Watson, and a paratype N collected at Tallaboa, near Ponce, July 23, 1914, by Harry G. Barber.

This species is quite variable in size, form and elytral markings. Paratypes B, H, I, K, and N, agree very closely with the type in size, form and markings; paratype D is not quite as triangular, more flattened above, pronotum more longitudinally sulcate at middle, and the elytral markings are not quite as numerous; paratypes E, F, L, and M, are slightly smaller, and more parallel and subcylindrical; paratypes A, C, G, and J, have the color much darker, and the yellow markings are more or less obliterated.

Genus PSILOPTERA Solier

Psioloptera SOLIER, Ann Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 283–284, pl. 11, fig. 13.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837–1838, *Buprestis*, pp. 20–77, pls. 5–19.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 27–30.—KERREMAN, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 90–103; Mon. Bupr., vol. 5, 1910–1911, pp. 1–566, pls. 27–32.
Lampetis, DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 76; 3 ed., 1836, p. 86.—SPINOLA, Ann. Soc. Ent. France, vol. 6, 1837, p. 113.

Head rugose, sometimes feebly depressed, and wider in front than on the vertex; front not narrowed by the insertion of the antennae; epistoma short, broadly and rather deeply emarginate in front; antennal cavities small, triangular, and armed posteriorly by a strongly elevated, oblique carina, and situated at some distance from the inner margin of the eyes. Antennae moderately long; first joint rather short and robust; second and third very short, globular more slender than the first, the third sometimes slightly longer than

the second; fourth and fifth elongate about equal in length, the fifth sometimes feebly enlarged and angulated at the apex; sixth to tenth moderately dentate on the inner side and subtriangular; eleventh oblong and rounded at apex; the dentate joints armed with poriferous pores and foveae on both sides of the joints. Eyes large, elliptical, strongly convex, and slightly closer to each other on the vertex than at the front. Pronotum wider than long, variable in shape, base bisinuate, and the surface sometimes with smooth shining areas. Scutellum very small and rounded. Elytra very variable, base sinuate, sides smooth posteriorly, sometimes dentate, with the apex emarginate, bidentate or obliquely truncate. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches long and feebly oblique; metasternum truncate in front, only feebly emarginate at middle, and with a narrow longitudinal median groove on the disk. Prosternum variable; anterior margin truncate, sinuate or lobed; prosternal process rather broad, feebly convex and with a groove along the lateral margins. Abdomen with the first segment broadly sulcate at middle. Posterior coxae strongly dilated internally, the anterior margin sinuate, and the posterior margin more or less emarginate on the interior dilated part. Legs feebly robust; anterior and middle femora feebly swollen at middle, the posterior ones subcylindrical and feebly flattened on both sides; tibiae subcylindrical, the anterior ones sometimes feebly arcuate; tarsi depressed, rather broad, the first joint of the anterior pair not longer than the second joint. Body very variable.

This is a very large genus and includes nearly 500 described species, which are distributed throughout the warmer parts of the world, with the exception of Australia and Oceania. Only a few species are found in Malaysia, where they are replaced by the genus *Chrysodema*. Eight species have been found in the West Indies, two of which are described in the present paper. Kerremans has divides the genus into four subgenera, but all of the West Indian species, except *fulgida* Olivier, belong to the subgenus *Lampetis* Dejean, which is separated from the other subgenera by the prosternum not produced at the middle, but with the anterior margin truncate, lobed or feebly sinuate; epistoma short, not separated on the front by a transverse carina, and not declivous in front, nor contracted on the sides. A large number of genera have been placed as synonyms of this genus by Kerremans, but since their distribution do not apply to the fauna covered by the present paper, the citations are omitted.

KEY TO THE SPECIES

1. Prosternum produced in front. (Guadeloupe.) *fulgida* (Olivier).
Prosternum not produced in front _____ 2.

2. Pronotum very rugose, with more or less distinct, longitudinal or transverse smooth spaces----- 3.
 Pronotum without longitudinal or transverse smooth spaces; surface rather densely punctures. (Lesser Antilles.)---- *guildini* Castelnau and Gory.
3. Elytra with a longitudinal lateral groove, which is usually filled with a dense pulverulence----- 4.
 Elytra without a longitudinal groove----- 5.
4. Reliefs on pronotum and elytra dark green, the depressions bronzy-green, and more or less purplish. (Cuba.)----- *torquata* (Dalman).
 Reliefs on pronotum and elytra brownish-black, with a feeble cupreous tinge, and the depressions olive green or aeneous. (Jamaica.)
 var. *jamaicensis* Fisher.
5. Pronotum longitudinally sulcate at middle----- 6.
 Pronotum not longitudinally sulcate at middle----- 7.
6. Reliefs on pronotum green or violaceous; elytra dark green, with a strong violaceous tinge, the intervals and striae interrupted by numerous distinct aureo-cupreous punctured spaces. (Haiti.)----- *aurifer* (Olivier).
 Reliefs pronotum black; elytra more obliquely acuminate posteriorly, aeneo-cupreous, sometimes feebly purplish, the intervals and striae not distinctly interrupted by irregular transverse punctured spaces. (Haiti.)
aurata (Saunders).
7. Pronotum with three distinct smooth spaces; elytra aeneo-cupreous, sometimes with a reddish tinge, and with numerous small depressions which are densely covered with a white pulverulence; body beneath with the median parts fiery red. (Cuba.)----- *straba* Chevrolat.
 Pronotum without distinct smooth spaces; elytra bluish, purplish or rubinous, and without depressed pulverulent spaces; body beneath aeneo-cupreous, with a slight bluish or purplish tinge. (Bahamas.)
bahamica Fisher.

PSILOPTERA (PSILOPTERA) FULGIDA (Olivier)

Buprestis fulgida OLIVIER, Entomol., vol. 2, gen. 32, 1790, pp. 10–11, pl. 7, fig. 69.—HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 85–87, pl. 142, fig. 4.

Psiloptera fulgida CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Buprestis*, pp. 24–25, pl. 6, fig. 24.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405. (separates p. 55).—KERREMANS, Mon. Bupr., vol. 5, 1910, pp. 21–22.

Buprestis viridiaurea SCHONHERR, Syn. Ins., vol. 1, pt. 3, 1817, p. 215.

The following is a translation of Olivier's original description:

Of a brilliant golden green, with a cupreous tinge; elytra striate and bidentate.

It resembles very closely in form and size *Buprestis collaris*. Antennae aeneous and serrate. Body rugose, and of a brilliant golden green color. Prothorax impressed on the upper part; surface rugose, green, with the smooth parts coppery red. Elytra feebly rugose, striate, golden green, with the elevations of the striae coppery red; apex truncate and bidentate. Body beneath rugose, shining, the median parts coppery red and very brilliant. Legs green, with the tarsi bluish.

It is found in Guadeloupe, where it has been collected by the late Mr. Badier. In the collection of Gigot D'Orcy.

Originally described by Olivier (1790) from Guadeloupe, and is recorded from the same locality by Fleutiaux and Sallé (1890). Castelnau and Gory (1837), and also Kerremans (1910) record it from Cayenne, French Guiana, without referring to the type locality, which they have probably overlooked. No specimens have been seen which would apply to the description given for this species. Kerremans¹⁵ records a specimen of *Psiloptera variolosa* Fabricius from Guadeloupe in the Paris Museum, which probably is this species.

PSILOPTERA (LAMPETIS) GUILDINI Castelnau and Gory

Psiloptera guildini CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Buprestis*, pp. 41-42, pl. 10, fig. 51.—KERREMANS, Mon. Bupr., vol. 5, 1910, p. 144.

Form broadly elongate, attenuate and broadly rounded in front, more acuminate posteriorly; elytra without marginal grooves; surface uniformly blue or bluish-green above and beneath; tarsi violaceous.

Head nearly flat; occiput with a narrow longitudinal groove; surface strongly and very irregularly rugose, the elevations broadly convex, irregular in size and shape, covering the entire surface, and densely, rather coarsely granulose, the depressions coarsely, sparsely and irregularly punctate, and from each puncture arises a short, erect hair; epistoma broadly and rather deeply arcuately emarginate at the middle, with an obtuse tooth on each side of the emargination. Pronotum about one and three-fourth times as wide as long, distinctly narrower in front than behind, widest along basal third; sides strongly obliquely expanded from anterior margin to basal third, then nearly parallel (feebly sinuate) to the posterior angles, which are acute; anterior margin nearly truncate, with only an obsolete median lobe; base bisinuate, with a very broad, moderately rounded median lobe; lateral margins rounded in front and feebly crenulate posteriorly; surface regularly convex, without transverse or longitudinal elevations, feebly impressed in front of scutellum, coarsely and irregularly punctate, the punctures deep, and becoming somewhat confluent toward the sides; intervals finely and densely granulose. Scutellum very small, transverse, and finely granulose. Elytra slightly wider than pronotum at base, feebly expanded behind the humeral angles, which are obtusely angulated, parallel to apical third, then arcuately attenuate to the tips, which are truncate and feebly emarginate; lateral margins entire, or at most, only obsoletely crenulate near humeral angles; surface striato-punctate, the striae feebly impressed, and the punctures rather coarse and distinctly separated, intervals feebly convex and obsoletely granulose, the striae and intervals are interrupted by numerous

¹⁵ Mon. Bupr., vol. 5, 1910, pp. 113-114.

small irregular depressions, which are finely, densely rugose, and sparsely clothed with short inconspicuous cinereous hairs, and more or less covered with pulverulence of the same color. Abdomen beneath coarsely and irregularly punctate, becoming feebly longitudinally rugose at the sides, and rather densely clothed with short recumbent cinereous hairs; first segment feebly longitudinally sulcate at middle; last segment at apex, broadly rounded in the female, subtruncate in the male. Prosternum strongly convex, not sulcate along the anterior margin, which is truncate, the surface rather densely and coarsely punctate and sparsely clothed with inconspicuous hairs; prosternal process broad, flat, and sparsely and very coarsely punctured at middle, with a deep marginal groove, which is sparsely, coarsely punctate, and sparsely clothed with a row of erect inconspicuous hairs, sides parallel to behind the anterior coxal cavities, then abruptly attenuate, and deeply arcuately emarginate to the apex, which is subtruncate, or feebly rounded.

Length, 22–28 mm.; width, 8.5–10.5 mm.

Castelnau and Gory (1837) described this species from St. Vincent, and it seems to be rare in collections. Material has been examined from the following localities. Coll. British Mus.: One specimen, Grand Anse, south end, Grenada; one specimen, Mustique Island, Grenadines (H. H. Smith); and another labeled Antilles, Trinidad (Fry Coll. 1905–100). Coll. U. S. Nat. Mus.: One specimen, Grenada, August 2, 1906 (R. D. Amstead, collector, Ballou No. 800).

This species is similar in shape to *aurata* Saunders, but can be readily distinguished from any other West Indian species of this genus by the uniform blue or bluish-green color above and by the absence of longitudinal and transverse smooth spaces on the pronotum.

PSILOPTERA (LAMPETIS) TORQUATA (DALMAN)

Buprestis torquata DALMAN, Anal. Ent., 1832, p. 54.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'île de Cuba, Anim. Artic., 1857 (French Edition), p. 59; (Spanish Edition) vol. 7, 1857, p. 27.

Psiloptera torquata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Buprestis*, p. 36, pl. 9, fig. 42.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 576 (separates p. 152).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 159.—KERREMANS, Mon. Bupr., vol. 5, 1910, pp. 55–56.

Buprestis aulica DEJEAN, Cat. Coleopt., 2 ed. 1833, p. 76; 3 ed. 1836, p. 86. (No description given.)

Form broadly elongate, attenuate and broadly rounded in front, and more acuminate posteriorly; head dark green; pronotum dark green, with two transverse arcuate impressions, which are densely covered with a golden-yellow pulverulence, one along the anterior

margin, rather broadly interrupted at the middle, the other near the base; scutellum bronzy-green; elytra with a longitudinal groove along the lateral margins, which is covered with a golden-yellow pulverulence similar to that on the pronotum, the reliefs dark green, and the depressions bronzy green margined with purple; beneath olive-green on the median parts, becoming purplish toward the sides.

Head nearly flat; surface strongly rugose, the reliefs rather broad, irregular, and densely granulate, the depressions filled with dense whitish pulverulence and sparsely clothed with rather long, erect hairs, which are more abundant along the eyes; epistoma broadly but not deeply arcuately emarginate in front, and with an obtuse tooth on each side of the emargination. Pronotum one and three-fourths times as wide as long, slightly narrower in front than behind, widest at base; sides broadly arcuately rounded from the anterior margin to near the base, then obliquely expanded to the posterior angles, which are acute; anterior margin arcuately emarginate, with a feebly rounded median lobe; base bisinuate, with a very large rounded median lobe; lateral margins more or less crenulate; surface with the transverse elevations densely granulose, becoming finely rugose toward the sides, and with coarse punctures in the depressions, which are covered by the pulverulence. Scutellum transversely oval and obsoletely granulated. Elytra wider than pronotum at base, arcuately expanded behind humeral angles, obsoletely attenuate to behind the middle, then more strongly arcuately attenuate to the tips, which are truncate and feebly emarginate; lateral margins coarsely crenulate near base, but entire posteriorly; humeral angles broadly rounded; surface striato-punctate, the striae interrupted at the sides and base, the punctures coarse and irregularly placed, and sparsely clothed with a few short recumbent hairs, the intervals feebly convex, and interrupted. Abdomen coarsely and sparsely punctate on the median parts (posterior margin of punctures not well defined), but becoming scabrous on the sides of the basal segment, sparsely clothed with long recumbent cinereous hairs on the median parts, the pubescence denser and mixed with a whitish pulverence toward the sides; intervals finely and densely granulose; first segment rather broadly and deeply sulcate at middle; last segment broadly rounded at apex. Prosternum transversely concave along anterior margin, which is broadly truncate and obsoletely sinuate at middle, the surface coarsely rugose; prosternal process feebly convex, nearly smooth, with a deep marginal groove, which is rather densely punctate at bottom, and sparsely clothed with rather long erect hairs, the sides feebly expanded behind the anterior coxal cavities, then obliquely attenuate to the apex, which is broadly rounded.

Length, 16-27 mm.; width, 6-10 mm.

This species was described by Dalman (1832) from Cuba. Chevrolat (1867) records it from all parts of Cuba, in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records it as being distributed throughout the entire island of Cuba, and reports it taken a number of times on the stems of the "Icaco." Kerremans (1910) records it from Cuba and Jamaica, but the latter locality applies to the variety described in the present paper.

Material has been examined from the following localities: Coll. Amer. Mus. Nat. Hist.: Four specimens, labeled Santiago de Cuba, without additional data; one specimen, Santiago, Cuba, September 6, 1903 (Wirt Robinson); one specimen, Cienfuegos, Cuba (Dr. Eugenio Cuesta); and another one from Aguadores, on the coast near Santiago de Cuba, August 25, 1908 (Chas. T. Ramsden). Coll. Acad. Nat. Sci. Phila.: Two specimens, Cuba (Poey Coll. No. 12). Coll. British Museum: One specimen, Cuba (Coll. Chevrolat); and another one labeled simply Cuba. Coll. Carnegie Mus.: One specimen, Nueva Gerona, Isle of Pines, August 30, 1912. Coll. S. C. Bruner: One specimen, Cienaga de Zapata, Cuba, July 9, 1920. Coll. U. S. Nat. Mus.: Six specimens from Cayamas, Cuba, collected between December and May by E. A. Schwarz. There are also two specimens of this species labeled No. 2 in the Gundlach Museum in Habana, which have not been examined.

This seems to be the most common species of this genus found in the West Indies, and can be separated from all the other species from that region, except the variety *jamaicensis*, by the elytra having a distinct longitudinal groove along the lateral margins, which is usually filled with a dense yellowish pulverulence. From the variety it can be separated by the color.

PSILOPTERA (LAMPETIS) TORQUATA, var. JAMAICENSIS, new variety

Similar in shape and structure to *torquata*, but differs from it in the color. Elevations above brownish-black, with a feeble cupreous tinge when viewed in certain lights, and the depressed areas olive-green or aeneous; beneath olivaceous, with a strong cupreous reflection.

Length, 18–30 mm.; width, 6.5–12 mm.

Type locality.—Pallisadoes, Kingston, Jamaica.

Type, allotype, and paratypes.—Carnegie Museum.

Paratypes.—Cat. No. 26805, U.S.N.M. One paratype in British Museum.

This variety described from 9 specimens, four males and four females received the Carnegie Museum, which were collected at the type locality October 1898, and one male from the British Museum labeled Jamaica, without a definite locality.

After examining a large series of specimens from both Cuba and Jamaica, it seems advisable to separate the form found in Jamaica from the typical *torquata*, and give it a new varietal name.

PSILOPTERA (LAMPETIS) AURIFER (Olivier)

Buprestis aurifer OLIVIER, Entomol., vol. 2, gen. 32, 1790, pp. 13-14, pl. 9, fig. 95.—HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, p. 185, pl. 140, fig. 7.

Buprestis aurifera FABRICIUS, Syst. Eleuth., vol. 2, 1801, p. 191.—SCHONHERR, Syn. Ins., vol. 1, pt. 3, 1817, p. 219.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French Edition), p. 58; (Spanish Edition) vol. 7, 1857, p. 27.

Psiloptera aurifera CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 575-576 (separates pp. 151-152).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 158-159.

Psiloptera amethystipes CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Buprestis*, p. 37, pl. 9, fig. 43.

Psiloptera wurtembergi MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, No. 8, 1837, pp. 49-50.—DEJEAN, Cat. Coleopt., 2 ed. 1833, p. 76; 3 ed., 1836, p. 86.

Psiloptera aurifer KERREMANS, Mon. Bupr., vol. 5, 1910, pp. 57-58.

Form broadly elongate, attenuate and broadly rounded in front, and more acuminate posteriorly; head golden-green; pronotum dark green, with a strong purplish tinge, the depressions golden-green and arranged as follows: A longitudinal median one, broader posteriorly and feebly interrupted in front of middle, a rather broad one on each side along anterior margin, a narrow one along lateral margin but not reaching to the posterior angles, and a transversely oblique one behind the middle; scutellum and elytra dark green, with a strong purplish tinge, the latter without marginal grooves, but with numerous irregular transverse impressions, which are aureo-cupreous; beneath aeneo-viridis, with the reliefs of a beautiful violaceous color.

Head nearly flat, surface strongly, irregularly rugose on the median parts, the elevations broadly convex, smooth and shining on top, there is a rather wide even area along the margin of the eyes, which is densely, coarsely punctate, surface also densely clothed with long semi-erect hairs, and usually covered with a dense pale yellow pulvlerulence; epistoma broadly, but not deeply arcuately emarginate in front, and with an obtuse tooth on each side of the emargination. Pronotum one and three-fourths times as wide as long, slightly narrower in front than behind, middle and base about equal in width; sides feebly arcuately rounded from anterior margin to near base, then obliquely expanded to the posterior angles, which are acute; anterior margin arcuately emarginate, with a broadly rounded median lobe; base feebly bisinuate, with the median lobe very broad and feebly rounded; lateral margins strongly

crenulate to near the posterior angles; surface with the reliefs very finely granulose, with a few coarse irregularly placed punctures, the depressions coarsely and densely punctate, each puncture with a small round elevation, in the middle of which arises a short inconspicuous hair, the depressions are also usually covered with a pale yellow pulverulence. Scutellum transverse, more or less depressed at middle, and the surface densely granulose. Elytra wider than pronotum at base, strongly arcuately expanded behind the humeral angles, nearly parallel to near the apical third, then arcuately attenuate to the tips, which are truncate, and very feebly sinuate or emarginate; lateral margins very coarsely crenulate on the basal expanded parts, and entire posteriorly; humeral angles broadly rounded; surfaces striato-punctate, the striae feebly impressed, and the punctures coarse, shallow and remotely placed, intervals feebly convex and finely granulose, the striae and intervals interrupted by numerous transverse irregular depressions, which are coarsely and densely punctate, rather densely clothed with short inconspicuous hairs, and usually covered with a pulverulence similar to that on the pronotum. Abdomen beneath with numerous irregular flattened elevations, the depressions densely, coarsely punctate, somewhat rugose, and becoming strongly scabrous on the sides of the basal segment, the depressions are also rather densely clothed with long recumbent cinereous hairs, and the punctuation usually concealed by the dense pulverulence; first segment broadly and rather deeply longitudinally sulcate at middle; last segment at apex broadly rounded in female, and subtruncate and feebly sinuate in the male. Prosternum not transversely concave along anterior margin, which is truncate or very feebly emarginate at middle; surface sparsely and very coarsely punctate; prosternal process broad, feebly convex, smooth at middle, with a deep marginal groove, which is rather densely punctate and sparsely clothed with a row of long erect cinereous hairs, sides parallel to behind the anterior coxal cavities, then strongly attenuate, and arcuately emarginate to the apex, which is very broadly rounded.

Length, 17-27 mm.; width, 6-11 mm.

Originally described by Olivier (1790) from a specimen which he believed was found at Cayenne, Guiana, and this locality was quoted by all of the older writers. The same species was also described from Haiti by Castelnau and Gory (1837) under the name *amethystipes*. Mannerheim (1837) described a species from Santo Domingo under the name *wurtembergi* and recorded it from *Cephalantho salicifolia*. Kerremans has placed this species as a synonym of *torquata* Dalman, but it is certainly not that species, but should be placed as a synonym of *aurifer* Olivier. Jacquelin

Duval (1857) records it from Santo Domingo and Cuba. Chevrolat (1867) also records it from Santo Domingo, in the collection of Chevrolat, and from Cuba in the collection of Dejean. Gundlach (1891) states that it is very doubtful from Cuba, but that it is found in Santo Domingo. Kerremans (1910) records it from Port au Prince, Haiti, in the Paris Museum, Brussels Museum, and the collections of Théry and Kerremans. This species is without any doubt confined to Santo Domingo, and the records given by Chevrolat and Jacquelain Duval of a specimen in the Dejean collection from Cuba, probably is based on *aulica*, which is a synonym of *torquata*, as Dejean never recorded a specimen in his collection under the name of *aurifer*.

Specimens have been examined from the following localities. Coll. British Mus.; One specimen, Antilles, Santo Domingo (Fry Coll.); one specimen St. Domingo (Parry, Saunders 74-18); and one specimen, Port au Prince, Haiti. Coll. Amer. Mus. Nat. Hist.: One specimen labeled simply Haiti (E. Lemke). Coll. U. S. Nat. Mus.: Two specimens, Port au Prince, Haiti (C. Bencomo, and W. L. Rockwell).

PSILOPTERA (LAMPETIS) AURATA (Saunders)

Psiloptera aurifera CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837,
Buprestis, p. 35, pl. 9, fig. 41. (Name preoccupied.)

Psiloptera aurata SAUNDERS, Catal. Bupr., 1871, p. 23.—KERREMANS, Mon.
Bupr., vol. 5, 1910, pp. 56-57.

Form broadly elongate, attenuate and broadly rounded in front, and more acuminate posteriorly; head golden-green; pronotum black, with a slight bluish tinge, the depressions golden-green and arranged as follows: A deep longitudinal groove at middle, broader posteriorly and extending from the anterior margin to near the scutellum, a rather broad depression on each side along the anterior margin, a similar one along the lateral margin, becoming broader posteriorly, extending obliquely over the postero-lateral region, and forming two smooth oblique elevations on the disk; scutellum bluish-black; elytra without marginal grooves, aeneo-cupreous, sometimes becoming brownish or reddish-cupreous, and the intervals more or less bluish-black; beneath bluish-black, with a strong greenish or violaceous tinge, and the depressions aeneo-viridis.

Head nearly flat; surface strongly, irregularly rugose on the median parts, the elevations broadly convex, smooth and shining on the top, there is a rather wide area along the margin of the eyes, which is densely, coarsely punctate, densely clothed with long semi-erect hairs, and usually covered with a dense yellow pulverulence; epistoma broadly, but not deeply arcuately emarginate in front, and with an obtuse tooth on each side of the emargination. Pronotum

one and three-fourths times as wide as long, narrower in front than behind, middle and base about equal in width; sides broadly arcuately rounded from anterior margin to near base, then feebly obliquely expanded to the posterior angles, which are acute; anterior margin feebly arcuately emarginate, with the median lobe broadly rounded; base feebly bisinuate, with a very broad, feebly rounded median lobe; lateral margins very coarsely and irregularly crenulate to near the posterior angles; surface with the reliefs finely and densely granulose, and with a few very coarse irregularly placed punctures; the depressions coarsely and densely punctate, each puncture with a small round elevation, in the middle of which arises a short inconspicuous hair, the depressions are also usually covered with a dense pale yellow pulverulence, which obscures the punctuation. Scutellum transverse and densely granulose. Elytra slightly wider than pronotum at base, arcuately expanded behind the humeral angles, which are broadly rounded, parallel to just behind the middle, then arcuately attenuate to the tips, which are truncate and feebly sinuate or emarginate; lateral margins very coarsely and irregularly crenulate on the expanded basal parts, and entire posteriorly; surface striato-punctate, the striae feebly impressed, and the punctures dense and irregularly placed, the intervals obsoletely granulose and interrupted by numerous punctured areas, and becoming more or less rugose toward the sides. Abdomen beneath with numerous irregular flattened elevations, and the depressions densely, coarsely punctate, somewhat rugose, and becoming strongly scabrous on the sides of the basal segments, the depressions are also rather densely clothed with long recumbent cinereous hairs, and covered with a pale pulverulence; first segment broadly longitudinally sulcate at middle; last segment narrowly flattened at apex, broadly rounded in the female and subtruncate and feebly sinuate in the male. Prosternum not transversely concave along anterior margin, which is feebly arcuately emarginate at the middle, and forming an obtuse lobe on each side; surface sparsely and very coarsely punctate, and sparsely clothed with long recumbent hairs; prosternal process broad, feebly convex, and smooth at middle, with a deep marginal groove, which is rather densely punctate and sparsely clothed with a row of long erect cinereous hairs, sides parallel to behind the anterior coxal cavities, then strongly attenuate and arcuately emarginate to the apex, which is very broadly rounded.

Length, 17–25 mm.; width, 6–10 mm.

Castelnau and Gory (1837) originally described this species from Santo Domingo under the name *aurifera*. This name being preoccupied by a species described by Oliver (1790) from Cayenne, French Guiana, Saunders (1871) proposed the name *aurata*. Ker-

remans (1910) records specimens from Haiti in the Paris Museum, Brussels Museum, and in the collection of Théry.

Specimens have been examined from the following localities, and from which the above description was made. Coll. Amer. Mus. Nat. Hist.: One specimen, labeled Haiti, without any definite locality. Coll. Mus. Comp. Zool.: One specimen, Grand Riviere, Haiti (W. M. Mann). Coll. British Mus.: One specimen, labeled Haiti (H. Deyrolle); and another, Haiti (Oberthur). U. S. Nat. Mus.: One specimen, Port au Prince, Haiti (Fry Coll. 1905-100) (Donated by the British Museum).

This species is closely allied to *aurifer* Olivier, but is more obliquely acuminate posteriorly, the reliefs on the pronotum are black, and not interrupted transversely by an oblique depression, the elytra aeneo-cupreous, and the striae and intervals not as distinctly interrupted by irregular transverse punctured areas.

PSILOPTERA (LAMPETIS) STRABA Chevrolat

Psiloptera straba CHEVROLAT, Ann. Ent. Soc. France, ser. 4, vol. 7, 1867, p. 575 (separates p. 151).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 158, no. 1257.—KERREMANS, Mon. Bupr., vol. 5, 1910, pp. 58-59.

Form rather narrowly elongate, attenuate and broadly rounded in front, and strongly acuminate posteriorly; elytra without marginal grooves; above uniformly aeneo-cupreous, sometimes with a strong reddish tinge, the elytra ornated with numerous small depressions, which are densely covered with a whitish pulverulence; beneath aeneo-brunneus, with the median parts of a brilliant reddish-cupreous color.

Head feebly convex; occiput with a narrow longitudinal groove at the middle; surface strongly and very irregularly rugose, the elevations broadly convex, irregular in shape and size, covering the entire surface, and obsoletely granulose on the top, the depressions sparsely, coarsely and irregularly punctate, each puncture with a small round elevation at the middle, from which arises a rather long semi-erect cinereous hair; epistoma broadly and deeply arcuately emarginate at middle, the margin truncate on each side of the emargination. Pronotum one and one-half times as wide as long, slightly narrower in front than behind, widest at the middle; sides strongly arcuately rounded from the anterior margin to near base, then parallel or feebly obliquely expanded to the posterior angles, which are acute: anterior margin feebly arcuately emarginate, with an obsolete median lobe; base bisinuate, with a very broad moderately rounded lobe at middle; lateral margins rounded in front, and more or less crenulate posteriorly; surface more or less transversely concave at basal third, the concavity somewhat interrupted at the middle, and

with three broad smooth spaces arranged transversely, one at the middle, and one on each side, balance of surface coarsely, irregularly, and rather densely punctate, and usually covered with a white pulverulence. Scutellum small, slightly transverse and densely granulose. Elytra distinctly wider than pronotum at base, feebly expanded behind the humeral angles, which are broadly rounded, parallel to middle, then arcuately attenuate to the tips, which are truncate, and more or less deeply emarginate; lateral margins entire, or at the most, only obsoletely crenulate near humeral angles; surface striato-punctate, the striae more strongly impressed toward apex, the punctures coarse, well separated on basal parts, but becoming somewhat confluent posteriorly, intervals wide and nearly flat anteriorly, but becoming narrower and strongly convex toward the apex, and more or less transversely rugose laterally, the striae and intervals are interrupted by numerous small round depressions, irregularly situated, sparsely clothed with very short hairs, and densely covered with a white pulverulence. Abdomen beneath sparsely and irregularly punctate, the punctures coarse and more irregular in shape toward the sides, and feebly scabrous on the sides of the basal segment, rather densely but irregularly clothed with short recumbent cinereous hairs at the sides of the segments; first segment broadly longitudinally concave; last segment at apex broadly rounded in the female, subtruncate and feebly sinuate in the male. Prosternum feebly convex, sometimes with the anterior margin feebly elevated, truncate or slightly arcuately emarginate at middle, and with an obsolete lobe on each side; surface coarsely, rather densely punctate, and sparsely clothed with short semi-erect hairs; prosternal process broad, flat, and smooth at middle, with a deep marginal groove, which is coarsely, irregularly punctate, and sparsely clothed with a row of short hairs, sides parallel to behind the anterior coxal cavities, then strongly attenuate and feebly arcuately emarginate to the apex, which is broadly rounded.

Length, 22–32 mm.; width, 7–10.5 mm.

Described by Chevrolat (1867) from Cuba, where he records it as living on a species of pine in the western part of the island, specimens in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records it from Vuelta-Abaja, Cuba, where it was found on the leaves of a pine. I have seen specimens from the following localities. Coll. Amer. Mus. Nat. Hist.: One specimen, San Francisco, Isle of Pines, July 1, 1921, on *Ficus elastica* (Hall and Ballou); two specimens, 14 kilometers north of Vinales, Cuba, September 20, 1913, on pine, where most of the pines had been destroyed three years previously by a cyclone (C. W. Leng and F. E. Lutz). Coll. U. S. Nat. Mus.: One specimen, from Guantanomo, Cuba, March 1913 (Chas. T. Ramsden) (donated by the

Amer. Mus. Nat. Hist.). Col. Acad. Nat. Sci. Phila.: One specimen, Cuba (Poey Coll. No. 1716). Coll. Carnegie Mus.: One specimen, Nueva Gerona, Isle of Pines, July 31, 1912. There is a single example of this species labeled No. 1257 in the Gundlach Museum in Habana, and another in the British Museum which have not been examined.

PSILOPTERA (LAMPETIS) BAHAMICA, new species

Gyascutus carolinensis WICKHAM (not Horn), Canad. Entomol., vol. 27, 1895, p. 295.

Male.—Form rather broadly elongate, attenuate and broadly rounded in front, and more acuminate posteriorly; head cupreous; pronotum and elytra with the reliefs shining, bluish, purplish, cupreous or rubinous when viewed in different lights, the depressions olivaceous or aeneo-cupreous; elytra without marginal grooves; beneath aeneo-cupreous, with a slight bluish or purplish tinge.

Head nearly flat, occiput with a rather narrow smooth longitudinal carina at middle; surface strongly, irregularly rugose on the median parts, the elevations broadly convex, smooth and shining on the top, and very irregular in shape, there is a rather wide area along the margin of the eyes, which is densely and rather finely punctate, and densely clothed with long, semierect cinereous hairs, the punctures between the rugae deep, coarse, and from each one arises a rather long recumbent hair; epistoma broadly, but not deeply arcuately emarginate at the middle, and with an obtuse tooth on each side of the emargination. Pronotum one and three-fourths times as wide as long, slightly narrower in front than behind, middle and base about equal in width; sides feebly arcuately rounded from anterior margin to near base, then very feebly obliquely expanded to the posterior angles, which are acute; anterior margin feebly arcuately emarginate, with an obsolete median lobe; base bisinuate, with the median lobe very broad and feebly rounded; lateral margins coarsely and irregularly crenulate, except at the extreme posterior angles, where they are smooth and shining; disk with a broad, rather deep depression in front of the scutellum, in the bottom of which are two deep foveae; surface rather uneven, with a tendency of forming transverse smooth spaces, but these are more or less punctured and not distinct, coarsely and sparsely punctate, the punctures very irregularly situated, becoming somewhat confluent along anterior and lateral margins, and sparsely clothed with short inconspicuous hairs. Scutellum transverse, and finely granulose. Elytra slightly wider than pronotum at base, feebly arcuately expanded behind the humeral angles, which are broadly rounded, nearly parallel to behind the middle, then arcuately attenuate to the tips, which are truncate and feebly emarginate; lateral margins coarsely and irregularly crenulate

on the expanded basal parts, and entire posteriorly; surface striato-punctate, the striae feebly impressed and the punctures rather coarse anteriorly, but becoming finer toward the apex, intervals nearly flat on the basal region, but becoming more convex posteriorly, rather rugose toward the sides, and interrupted by numerous inconspicuous punctured spaces, and clothed with a few very short inconspicuous hairs. Abdomen beneath coarsely and rather densely punctate, the punctures becoming finer, denser and somewhat crenulate toward the sides, finely scabrous at the sides of basal segment, and rather densely clothed with moderately long recumbent hairs; first segment broadly longitudinally sulcate at the middle; last segment subtruncate and feebly sinuate at apex. Prosternum moderately convex, the anterior margin obsoletely arcuately emarginate in the middle, and forming an obsolete lobe on each side; surface sparsely, coarsely, and irregularly punctate, and somewhat rugose at the sides; prosternal process moderately broad, nearly flat, and smooth at the middle, with a deep marginal groove, which is coarsely punctate and sparsely clothed with a row of long hairs, sides parallel to behind the anterior coxal cavities, then strongly attenuate and feebly arcuately emarginate to the apex, which is obtusely rounded. Posterior coxae with an obtuse tooth on the posterior margin, situated closer to the legs than the lateral margin.

Female.—Similar to the male but slightly more robust, and the last abdominal segment broadly rounded at apex.

Length, 20–22 mm.; width, 6.5–8 mm.

Type locality.—Eleuthera, Bahamas.

Type and allotype.—Cat. No. 26806, U.S.N.M.

Paratype.—Coll. British Museum.

This species was described from three specimens, two males and one female, collected at the type locality, July 9, by Prof. H. F. Wickham.

It is allied to *aurata* Saunders and *aurifer* Olivier, but the pronotum not longitudinally sulcate at middle, and the transverse smooth spaces on disk not distinctly marked. This is the species recorded by Prof. H. F. Wickham in the Canadian Entomologist as *Gyascutus carolinensis* Horn.

Genus EUCHROMA Solier

Euchroma SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 284–286.
pt. 11, fig. 14.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, pp. 5–7,
pl. 1.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 20–21.—KERREMANS,
Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 67–68; Mon.
Bupr., vol. 3, 1908, pp. 245–250.

Head nearly flat or feebly convex, distinctly wider in front than at vertex; front longitudinally grooved, but not narrowed by the

insertion of the antennae; epistoma rather elongate and broadly emarginate in front; antennal cavities small, rounded, and situated a short distance from the inner margin of the eyes. Antennae short and robust; first joint rather short and enlarged at apex; second very short and obconical; third triangular and as long as the first; fourth to tenth triangular (outer joints wider than long), strongly dentate on the inner side, and armed with poriferous pores (which are more or less pubescent) on both sides of the joints; the eleventh joint emarginate at the apex. Eyes large, elliptical, strongly convex, and much closer to each other on the vertex than at the front. Pronotum wider than long, regularly convex, and without a median carina or sulcus. Scutellum small, suboval, and narrower in front than behind. Elytra elongate, strongly attenuate posteriorly; base sinuate and the lateral margins entire. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches long and feebly oblique; metasternum truncate in front, with a feeble arcuate emargination at the middle, and the surface broadly concave. Prosternum wide, strongly convex, with the anterior margin arcuately emarginate at middle; prosternal process broad, broadly flattened, with the sides declivous. Posterior coxae strongly dilated internally; anterior margin sinuate; posterior margin strongly oblique. Legs robust; femora subcylindrical, flattened, and feebly swollen at middle; tibiae cylindrical, feebly expanded at apex; tarsi depressed and rather broad, the first joint of the posterior pair a little longer than the following joint. Body elongate, very robust and rather strongly attenuate posteriorly.

This genus includes some of the largest Buprestids, and is very common throughout the Neotropical Region. Only one species is recognized, which is separated into a number of varieties according to the color and geographical distribution.

EUCHROMA GIGANTEA, var. HARPERI Sharp

Euchroma gigantea, var. *harperi* SHARP, Trans. Ent. Soc. London, 1881,

pp. 289, 293-294.—KERREMANS, Mon. Bupr., vol. 3, 1908, p. 249.

Euchroma gigantea FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405 (separates p. 55).

Male.—Form very large, robust, and moderately convex; above dark purplish-black to dark green, according to the direction in which the specimen is viewed; pronotum without discal spaces; beneath of the same color as above.

Head feebly convex; front with a broad, shallow longitudinal groove, which is interrupted on the vertex; occiput narrowly longitudinally sulcate, the sulcus terminating in a rather deep fovea on the top of the vertex; surface sparsely and finely punctate, the punc-

tures irregularly placed and becoming denser along the eyes, the intervals densely and obsoletely punctate; epistoma broadly arcuately, but feebly emarginate at middle, with a rather large obtuse tooth on each side of the emargination. Pronotum one and two-third times as wide as long, distinctly narrower in front than behind, widest near the middle; sides broadly arcuately rounded, the lateral margins strongly elevated posteriorly but becoming obsolete near the anterior margin, which is broadly arcuately emarginate; base feebly bisinuate, and the posterior angles obtusely angulated; surface regularly convex, polished and shining, densely and obsoletely punctate, with a number of deeper and larger punctures intermixed, the large punctures very sparse on the disk, but becoming denser toward the margins. Scutellum smooth. Elytra wider than pronotum at base, broadly rounded behind the humeral angles, strongly sinuate at the posterior coxae, behind which it is arcuately expanded to the apical third, then arcuately attenuate to the tips, which are narrowly and arcuately emarginate; each elytron with four more or less distinct longitudinal costae, and the intervals covered with vermicular reliefs. Abdomen beneath smooth and shining, with a few obsolete punctures, which are more abundant along the anterior margins of the segments; first segment feebly convex, without a median depression; fifth segment longer than the preceding one, and broadly, deeply, and angularly emarginate at the middle; last segment elongate, rather acuminate at apex, and very deeply and broadly depressed on each side of the median longitudinal elevation. Prosternum strongly convex, and abruptly declivous along the anterior margin, which is feebly arcuately emarginate at middle, and forming an obsolete lobe on each side of the emargination; prosternal process with the sides feebly dilated behind the anterior coxal cavities, then obliquely attenuate to the apex, which is obtusely rounded; surface densely and rather finely puncture, and densely clothed along the middle with a fine, erect pale pubescence (more or less rubbed off in some specimens), this is continued along the middle of the metasternum, where it diverges into two patches, which continue along the inner margin of the hind coxae and hind margin of the posterior femora.

Female.—Differs from the male in being nearly glabrous on the underside, the fifth ventral segment elongate, more than two times as long as the preceding one, strongly attenuate to the apex, which is feebly, broadly arcuately emarginate, and with the last segment only feebly visible, densely punctured, and with a small notch at the apex.

Length, 60–70 mm.; width, 25–28 mm.

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This variety was described by Sharp (1881) from Georgetown, British Guiana, and its distribution extends from the type locality northward into the Antilles. Kerremans (1908) records it as distributed throughout all the Antilles, and Fleutiaux and Sallé (1890) record *gigantea* Linnaeus from Guadeloupe, which probably refers to this variety.

The following West Indian material has been examined: Coll. British Mus.: Two specimens, one labeled Guadeloupe (Tarnier) and the other Cuba (Heyne).

This form can be separated from the other varieties of this species by the uniformly dark color and the almost entirely absence of the discoidal spaces on the pronotum.

Genus PELECOPSELAPHUS Solier

Pelecopselaphus SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 286-287, pl. 11, fig. 15.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 152-155, pls. 37-38.—LACORDAIRE, Gen. Col., vol. 4, 1857, p. 25.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, p. 58; Mon. Bupr., vol. 3, 1908, pp. 250-262, pl. 1.

Head distinctly and broadly depressed on front, and narrowly grooved on the occiput; front not narrowed by the insertion of the antennae, the sides obliquely converging to the vertex; epistoma arcuately emarginate in front, with the lateral angles of the emargination obtusely rounded; antennal cavities large, triangular, margined posteriorly by an elevated arcuate carina, and situated a short distance from the inner margin of the eyes. Antennae short; first joint elongate and moderately clavate; second short and subglobular; third two times as long as the second, and strongly expanded at apex; the following joints robust, wider than long, strongly dentate on the inner side, and both sides of the serrate joints armed with poriferous pores and foveae. Eyes large, elliptical, strongly convex, and much closer to each other on the vertex than at the front. Pronotum distinctly wider than long, narrower in front than behind, feebly convex, more or less sulcate on the disk, and declivous at the sides; anterior margin bisinuate, with the median lobe broadly rounded; base bisinuate, with a broadly rounded median lobe; sides obliquely expanded anteriorly, and broadly rounded posteriorly, the lateral margins smooth, sharply elevated, extending forward to the apical angles, where they are arcuately connected to the anterior margin. Scutellum small, wider than long, and subquadangular. Elytra elongate, feebly lobed at base; sides arcuately attenuate to the apex, which is acuminate, the lateral margins strongly serrate posteriorly. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches rather short and broad; metasternum

truncate in front, with an arcuate emargination at the middle, and with a narrow longitudinal groove on the disk. Prosternum wide, and feebly convex; anterior margin truncate or arcuately emarginate, with the margin narrowly elevated; prosternal process very broad, flat or feebly convex, and not sulcate at the middle. Posterior coxae dilated internally; anterior and posterior margins sinuate. Legs slightly robust; anterior and middle femora feebly swollen at middle, the posterior pair subcylindrical, and flattened on both sides; anterior tibiae strongly carinate on the outer margin; tarsi compressed, the first joint of the posterior pair as long as the following two joints united. Body elongate, navicular, and acuminate at apex.

This is a small genus containing about nine described species, all of which are distributed from Mexico to South America, with the exception of one unrecognizable species, which has been recorded from the Antilles.

PELECOPELAPHUS STRICTUS (Linnaeus)

Buprestis stricta LINNAEUS, Syst. Nat., 10 ed., 1758, p. 409, no. 4; Syst. Nat., 12 ed., vol. 1, pt. 2, 1767, p. 659, no. 4.—GMELIN, Linnaeus, Syst. Nat., 13 ed., vol. 1, pt. 4, 1788, p. 1929.

Pelecopcephalus stricta HOPE, Coleopterist's Manual, vol. 3, 1840, p. 52.

Pelecopselaphus stricta SAUNDERS, Catal. Bupr., 1871, p. 19.

Pelecopselaphus strictus KERREMANNS, Mon. Bupr., vol. 3, 1908, p. 262.—

LENG and MUTCHELIER, Bull. Amer. Mus. Nat. Hist., vol. 37, 1917, p. 205.

The following is a copy of the very short original description given by Linnaeus:

B. elytris serratis sulcatis, tibiis angulatis, abdomine glabro. Habitat in Indiis.

Saunders (1871) lists the species from Brazil, Leng and Mutchler (1917) from the Antilles, and Kerremans (1908) records it from South America and the Antilles, saying that he has not seen the species, and also that it is the only Linnean species which he has not examined. Hope (1840) says that it is probably a *Pelecopcephalus* of Serville, and that Gmelin mentions the locality South America, as well as India, but he regards it as belonging to the former. Linnaeus (1758) in the original description gives "Indiis" as the locality, which may refer to either the East or West Indies, and not to India as stated by Gmelin.

The species is practically unknown, is unrecognizable from the short description, and the locality is also very questionable. It probably is a South American species and does not belong to the West Indian fauna, but is included in the present paper, since it has been recorded in the literature from the Antilles.

Genus CHRYSESTHES Solier

Chrysesthes SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 290-291, pl. 11, fig. 17.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 25-26.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 58-59; Mon. Bupr., vol. 3, 1908, pp. 262-270.

Head feebly depressed, distinctly wider in front than at vertex; front not narrowed by the insertion of the antennae, and sometimes longitudinally grooved; epistoma short and emarginate in front; antennal cavities small, rounded, margined posteriorly by an elevated carina, and situated near the inner margin of the eyes. Antennae short; first joint elongate, and strongly clavate; second very short and globular; third elongate, shorter than the first, subcylindrical, and feebly expanded at apex; following joints triangular, wider than long, robust, strongly dentate on the inner side, and the serrate joints armed with poriferous pores and foveae on both sides of the joints. Eyes large, strongly convex, broadly oblong, and much closer to each other on the vertex than on the front. Pronotum wider than long, attenuate anteriorly; disk feebly convex, and not longitudinally sulcate. Scutellum small, transverse or subrotundate. Elytra nearly truncate at base, strongly attenuate posteriorly, with the sides near apex strongly serrate. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches long and oblique; metasternum truncate in front, with a shallow arcuate emargination in front, and a narrow longitudinal groove on the disk at middle. Prosternum wide, feebly convex, anterior margin truncate, margined, and declivous near the eyes; prosternal process wide and not sulcate at middle. Posterior coxae dilated internally; anterior margin strongly sinuate, and the posterior margin straight. Legs slightly robust; anterior and median femora swollen at middle, the posterior pair subcylindrical and feebly flattened on both sides; tibiae slender, cylindrical, feebly enlarged at the apex, the anterior and middle pairs feebly arcuate, the former longitudinally carinate on the outer surface. Tarsi depressed, gradually triangularly enlarged, and flattened from the first to fourth joint; first joint of posterior pair nearly as long as the following two joints united. Body elongate, navicular and acuminate at apex.

This is a small genus, containing only five described species, which are confined in their distribution to the Neotropical Region, and of which, only one has been recorded from the West Indies.

CHRYSESTHES LANIERI (Chevrolat)

Buprestis (Chrysesthes) lanieri CHEVROLAT, Rev. Zool., 1838, p. 280.

Buprestis lanieri GORY, Mon. Bupr. Suppl., vol. 4, 1840, p. 123–124, pl. 21, fig. 121—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Arctic, 1857 (French edition), p. 61, pl. 7, figs. 6–7; (Spanish edition), vol. 7, 1857, p. 28; vol. 8, pl. 7, figs. 6–7.

• *Pelecopselaphus lanieri* CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 574–575, (separates pp. 150–151).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 157, No. 244.

Chrysesthes lanieri KERREMANS, Mon. Bupr., vol. 3, 1908, pp. 269–270.

Male.—Form rather narrowly elongate, navicular, feebly convex: above violaceous, with a strong greenish reflection; head and pronotum obsoletely margined with green; each elytron ornated with three round bright green impressions, one at the basal fourth, one at the middle, and the other near the apical third; beneath golden-green, more shining than above, and the abdominal segments broadly tinted with steel-blue along posterior margins; tarsi blue.

Head feebly transversely depressed behind the epistoma, with a longitudinal sulcus, which is deeply impressed on occiput and vertex, but becoming more obsolete on the front; surface more or less rugose, glabrous, coarsely but not very densely punctate, the punctures irregular in size and distribution, and bright green or ruby-red at the bottom; intervals coarsely and densely granulose; epistoma broadly and rather deeply arcuately emarginate in front, forming a large obtuse lobe on each side of the emargination. Antennae with the serrate joints armed with two large foveae on the under side, and a single obsolete one on the upper surface. Pronotum one and one-half times as wide as long, slightly narrower in front than behind; sides obliquely expanded from apical angles to near middle, then nearly parallel to the posterior angles, which are nearly rectangular; anterior margin nearly truncate; base slightly bisinuate, with the median lobe very broadly and feebly arcuately rounded: laterally the sides are sharply margined posteriorly, the margins smooth, arcuate, inflected in front, but not extending to the anterior margin; surface evenly convex, and not sulcate at middle, coarsely, transversely rugose, and finely and rather sparsely punctate, the punctures irregularly placed between the rugae, and of a bright ruby-red color at the bottom; reliefs finely and densely granulose. Scutellum transversely oblong, and obsoletely granulose. Elytra wider than pronotum at base, obliquely expanded behind the humeral angles, strongly sinuate at posterior coxae, then arcuately attenuate to the tips, which terminate in a short, acute tooth; lateral margins

coarsely and irregularly serrate posteriorly; surface striato-punctate, the striae slightly impressed and the punctures fine, rather closely placed, ruby-red at bottom, and sometimes forming irregular double rows in the striae; intervals feebly convex, somewhat confused and transversely rugose toward the base, and the surface densely and obsoletely granulose; elytral foveae densely, coarsely granulose, with a few larger punctures intermixed. Abdomen beneath coarsely and irregularly punctate, the punctures very shallow, widely separated on the median parts, but becoming finer and much denser on the antero-lateral part of the segments, sparsely clothed with short inconspicuous hairs, the pubescence denser on the densely punctured areas; intervals densely obsoletely granulose; first segment feebly convex at middle; last segment broadly, deeply arcuately emarginate at apex, with a sharp acute tooth on each side of the emargination. Prosternum coarsely and rather densely punctate, densely clothed with rather long erect inconspicuous hairs, and with the intervals finely and densely granulose; prosternal process feebly convex, strongly expanded behind the anterior coxal cavities, then strongly attenuate and arcuately emarginate to the apex, which is broadly and feebly rounded.

Female.—No specimens have been examined of this sex, but the last abdominal segment is recorded as being more truncate at apex, and the lateral teeth not as strongly produced.

Length, 16–18 mm.; width, 5.5–6 mm.

Originally described by Chevrolat (1838) from Cuba. Jacquelain Duval (1857), and Chevrolat (1867) both record it from Cuba, in the collections of Gundlach, Poey and Chevrolat, and state that the larvae live in the royal palm. Gundlach (1891) records collecting it at Cardenas, Cuba. Gory (1840) also records it from Cuba, and states that Chevrolat reports the larvae of this Buprestid living in the "eorce" of the royal palm (*Oreodoxa regia*), (which had been cut down) at a place six leagues northeast of the Bay of Jagua, on the south side of Cuba, near a small stream. He collected about 20 examples during May, which were fully matured and ready to emerge.

Material has been examined from the following localities. Coll. Acad. Nat. Sci. Philad.: One specimen, labeled Cuba (Poey Coll. No. 798). Coll. British Mus.: One specimen, without locality and simply labeled Saunders 74–18. Coll. U. S. Nat. Mus.: One specimen received from S. C. Bruner, collected at Camaguey, Cuba, August 10, 1921 (Angelica Rieto); and one specimen labeled Cuba (Poey Coll. No. 798) (donated by the Acad. Nat. Sci. Philad.). There is a single example labeled *Pelecopselaphus lanieri* No. 244 in the Gundlach Museum in Habana; but has not been examined by the writer.

Genus **HILAROTES** Thomson

Hilarotes SAUNDERS, Catal. Bupr., 1871, p. 21.—THOMSON, Typ. Bupr., 1878, pp. 39–40.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, p. 89; Mon. Bupr., vol. 3, 1909, pp. 425–429.

Head regularly arcuate, and feebly convex, slightly wider in front than at vertex; front not narrowed by the insertion of the antennae, and more or less rugose; occiput with a narrow longitudinal groove; epistoma transversely truncate; antennal cavities small, rounded, margined posteriorly by an obtuse elevation, and situated near the anterior margin of epistoma and also rather close to the inner margin of the eyes. Antennae short; first joint elongate, and feebly clavate; second very short, obconical; third slender, elongate and feebly triangular; fourth about equal in length to the third, but broader at the apex; the following joints feebly triangular and becoming gradually shorter toward the last joint, and armed with the poriferous pores on both sides of the joints, and with a small fovea on the under side near the anterior apical angle. Eyes rather large, elliptical, feebly convex, and slightly closer to each other on the vertex than at the front. Pronotum wider than long, moderately convex, and the disk with three longitudinal impressions; base feebly sinuate. Scutellum small and rounded. Elytra moderately convex, nearly truncate at base, attenuate posteriorly, sides with a single tooth near apex. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches rather long and oblique; metasternum truncate in front, with a deep arcuate groove on the disk. Prosternum feebly convex, the anterior margin arcuately emarginate and strongly elevated; prosternal process wide, feebly convex, and not sulcate at middle. Posterior coxae strongly dilated internally; anterior margin strongly sinuate; posterior margin oblique, usually with a large obtuse tooth near the middle, but sometimes obsolete. Legs slender, anterior and middle femora slightly swollen at middle, the posterior pair subcylindrical and feebly flattened on both sides; tibiae slender and cylindrical; tarsi depressed, the first joint of the posterior pair nearly as long as the following two joints united. First abdominal segment nearly as long as the following three segments united, and more or less concave at the middle. Body elongate, attenuate in front, and more acuminate posteriorly.

This name was first used by Saunders (1871) for two species, *mannerheimi* Mannerheim, and *chalcoptera* Jacquelain Duval without giving any description, but Thomson (1878) gives a description of the genus under the same name, in which he includes both of the species listed by Saunders. At present the genus includes three species, two of which have been described from Haiti, and the other from Cuba.

The genus is very closely allied to *Halecia*, and Kerremans separates it from that genus by the posterior margin of the hind coxae strongly toothed at the middle, but this character is variable, and in *chalcoptera* is nearly obsolete. All the species of *Hilarotes* can be separated from the species of *Halecia* found in the West Indies, by the lateral margin of the elytra armed with a single strong tooth near the apex.

KEY TO THE SPECIES

1. Sides of pronotum nearly parallel posteriorly, not distinctly wider at base than at middle; color above auro-viridis.
----- *nitidicollis* (Castelnau and Gory).
Sides of pronotum distinctly narrower in front than behind, and widest at base ----- 2.
2. Pronotum and elytra unicolored, aeneo-viridis. *mannerheimi* (Mannerheim).
Pronotum and elytra bicolored; pronotum aeneo-viridis, sometimes with a bluish reflection; elytra aeneo-cupreous. *chalcoptera* (Jacquelín Duval).

HILAROTES NITIDICOLLIS (Castelnau and Gory)

Halecia nitidicollis CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 110-111, pl. 28, fig. 151.

Hilarotes nitidicollis KERREMANS, Mon. Bupr., vol. 3, 1909, pp. 427-428.

Psiloptera auricomans NONFRIED, Deutsch. Entomol. Zeitschr., 1891, p. 272.

Form broadly elongate and feebly convex; above shining, uniformly aureo-viridis; beneath aureo-viridis, with a strong cupreous tinge, tibiae bluish-green, and the tarsi cyaneous.

Head feebly convex and without depressions on the front, but with a narrow longitudinal groove on the vertex and occiput; surface coarsely and deeply punctate, the punctures irregularly placed and confluent in some areas, the reliefs smooth and somewhat rugose; epistoma transversely truncate in front; antenna bluish-green. Pronotum one and one-half times as wide as long, slightly narrower in front than behind, widest near the middle; sides subangularly arcuate, obliquely narrowed in front, dilated in front of middle, nearly parallel posteriorly, and sinuate near the posterior angles, which are nearly rectangular, the lateral margins rounded and strongly rugose, with a very short smooth carina at the base; anterior margin rather deeply arcuately emarginate, with a broadly rounded median lobe; base feebly sinuate and obtusely angulated at the middle; disk strongly convex, with a broad longitudinal median sulcus, which is more or less interrupted at the middle and forming a deep fovea in front of the scutellum, and also on each side a short narrow longitudinal depression, deeper at the base, and extending to near the

middle, surface very coarsely and deeply punctate, the punctures irregularly placed, and becoming somewhat confluent toward the sides; intervals smooth and shining. Scutellum rounded, the surface finely and densely granulose. Elytra distinctly wider than pronotum at base, strongly obliquely expanded behind the humeral angles, nearly parallel to behind the middle, then strongly arcuately attenuate to the tips, which are obtusely rounded and bidentate, the lateral margins with a large tooth near apex; surface with the basal depression transverse and rather deep, striato-punctate, the striae feebly impressed, regular on the disk, but becoming more irregular toward the sides, where the surface is more or less transversely rugose, the punctures rather deep, somewhat confluent and irregularly placed in the striae, the intervals feebly convex and nearly smooth. Abdomen beneath very sparsely and rather coarsely punctate, from each puncture arises a short, erect cinereous hair; intervals smooth and shining; first segment broadly and feebly concave at middle; last segment broadly rounded and feebly subtruncate at apex. Prosternum convex, the anterior margin broadly arcuately emarginate at middle, with an obsolete lobe on each side, and the margin strongly elevated; surface sparsely and very coarsely punctate, and clothed with a few long inconspicuous hairs; prosternal process feebly convex, nearly smooth, and not sulcate at middle; sides feebly expanded behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded.

Length, 19 mm.: width, 7.5 mm.

This species was described by Castelnau and Gory (1838) from a specimen in the Buquet Collection from Santo Domingo, and Nonfried (1891) described the same species from Haiti under the name *Psiloptera aureomicans*. Kerremans (1909) records it from Haiti in the Paris Museum and also in the collections of Théry and Kerremans. It seems to be rare in collections and confined to the island of Haiti. Through the kindness of the British Museum I have been able to examine two specimens, one labeled Port-au-Prince, Haiti, and the other simply Haiti (Obenthur), both of these specimens are also labeled *aureomicans* Nonfried, and later determined by Kerremans as *nitidicollis* Castelnau and Gory. (One of these specimens has been donated to the U. S. Nat. Mus.)

Kerremans¹⁶ has placed *chalcoptera* Jacquelín Duval as a synonym of this species, but it is quite distinct from *nitidicollis* and is confined to the island of Cuba.

¹⁶ Mon. Bupr., vol. 3, 1909, p. 427.

HILAROTES MANNERHEIMI (Mannerheim)

Ancylocheira mannerheimii DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 88. (No description).

Buprestis mannerheimii MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, pp. 66-67.—GORY, Mon. Bupr., Suppl., vol. 4, 1840, pp. 121-122, pl. 21, fig. 119.

Hilarotes mannerheimi KERREMANS, Mon. Bupr., vol. 3, 1909, pp. 428-429.

Buprestis inaequalis MANNERHEIM (in litt.).

The following is a translation of Mannerheim's original description:

Greenish-bronzy, antennae black; femora violaceous at tip; head rugosely punctate; thorax dilated at base; above uneven, deeply canaliculate and rugosely punctate; elytra striate, uneven, the interstices punctate, and the alternate ones feebly elevated.

Var. b. Violaceous-aeneous, marked with greenish-bronzy; elytra greenish-bronzy lineate; legs greenish-bronzy, the femora at apex and tarsi violaceous.

Island St. Domingo, collected by Mr. Jaeger.

Length, 8 lines; width, 3 lines.

Head strongly rugosely punctate, front deplanate. Antennae black, and slightly shorter than the head and thorax. Thorax scarcely longer than the width in front, and at the base almost two times wider, and here as at the apex bisinuate; sides feebly constricted behind the middle, and thence dilated, posterior angles acute and rather prominent; above deeply rugosely punctate, very uneven, and throughout the entire length deeply and broadly canaliculate. Scutellum small, orbicular, and smooth. Elytra at base much broader than thorax, nearly four times as long as the thorax, and gradually attenuate posteriorly; apex subemarginate, and dentate on the inside; sides margined, the margin ending in an acute tooth a little before the apex; above very uneven, at the humeri deeply foveate, striate; interstice irregularly punctate, the alternate ones feebly elevated. Body beneath and legs deeply punctate, the punctures here and there rugose.

This name was first used by Dejean (1833) for a specimen in his collection from Santo Domingo under the name *inaequalis* Mannerheim, (which was a manuscript name) without giving a description of the species. Mannerheim (1837) described the species, using the same name as listed in the Dejean Catalogue. The species is very rare in collection, as Gory made his figure from the specimen in the Dejean Collection, and the species was unknown to Kerremans. No specimens have been seen which agree with the description, and the species is included in the key from the characters given in the original description.

HILAROTES CHALCOPTERA (Jacquelin Duval)

Buprestis chalcoptera JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French Edition), pp. 59–60; (Spanish Edition), vol. 7, 1857, p. 27.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 578 (separates p. 154).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 161–162, No. 308.

Form rather broadly elongate, feebly convex, and shining above; head and pronotum aeneo-viridis, sometimes with a bluish reflection; scutellum and elytra aeneo-cupreous; beneath dark green, with a strong violaceous tinge.

Head nearly flat, and without any depressions on the front, but with a narrow longitudinal groove on the vertex and occiput; surface not rugose, but coarsely, deeply and rather sparsely punctate, the punctures well separated and irregularly placed; intervals smooth; epistoma broadly truncate in front; antennae aeneo-brunneus, the basal joints green, with the first joint testaceous at base. Pronotum about one and one-half times as wide as long, distinctly narrower in front than behind, widest at base; sides feebly obliquely expanded from apex to basal fourth, then abruptly and obliquely expanded to the posterior angles, which are rather acute; anterior margin arcuately emarginate, with an obtusely angulated lobe at the middle; base transversely truncate to middle of elytron, and with a broadly rounded median lobe, which is arcuately emarginate in front of scutellum; lateral margins rounded and smooth anteriorly, with a short smooth carina at the base; disk with a broad longitudinal sulcus, which is more deeply impressed near the scutellum, a broad obsolete one on each side, extending from the base to near the middle, and a deep narrow one along the anterior margin, broadly interrupted at the middle, these depressions causing a broadly rounded gibbosity near the posterior angles; surface coarsely, sparsely and irregularly punctate, and very sparsely clothed with short inconspicuous hairs, the intervals irregular in size and finely and obsoletely punctured. Scutellum rounded or transversely oblong, slightly more acutely rounded posteriorly, with the surface nearly smooth. Elytra distinctly wider than pronotum at base, broadly arcuately expanded behind the humeral angles, nearly parallel to behind the middle, then strongly arcuately attenuate to the tips, which are obtusely rounded and bidentate, the lateral margins with a large tooth near the apex; disk with a broad irregular basal depression; surface striato-punctate, the striae feebly impressed, regular on the disk, but becoming more irregular and somewhat confused at the sides, the punctures in the striae fine, remotely and rather regularly spaced, some of the intervals more strongly convex, especially toward the apex, and sparsely, irregularly punctate, from each puncture arises a short in-

conspicuous hair, which is more erect than those in the striate. Abdomen beneath coarsely and rather densely punctate, and sparsely clothed with rather long recumbent hairs, with a few denser pubescent areas at the antero-lateral part of the segments; first segment convex, without a median sulcus; last segment broadly truncate at apex. Prosternum convex, the anterior margin feebly arcuately emarginate, and feebly declivous, the surface coarsely and rather densely punctate and sparsely clothed with short erect inconspicuous hairs; prosternal process nearly flat, rather densely punctured, and not sulcate at the middle, the sides parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded. Posterior coxae with the median tooth on posterior margin only feebly developed.

Length, 15–17 mm.; width 5.5–6.5 mm.

This species was described by Jacquelin Duval (1857) from Cuba, and its distribution is probably confined to that island. Chevrolat (1867) records it from Cuba, in the collections of Gundlach and Poey. Gundlach (1891) reports collecting it in the western part of Cuba.

Through the kindness of the Academy of Natural Sciences, Philadelphia, I have been able to examine two specimens from their collection labeled Cuba (Poey Coll. No. 14), from which the above description was made, and which are probably the specimens referred to by Chevrolat. The specimens are probably both females. (One of these specimens has been donated to the U. S. Nat. Mus.) There is also a single example of this species labeled No. 308 in the Gundlach Museum in Habana, and another one in the British Museum, which have not been examined.

Kerremans has placed this as a synonym of *nitidicollis* Castelnau and Gory, but it is a distinct species. The elytra are aeneo-cupreous and more finely punctured, pronotum distinctly narrower in front than behind, and widest at base, the surface more finely punctured and the longitudinal depressions on each side of the middle more obsolete, prosternum more densely punctured, the anterior margin declivous, and not elevated, and the underside of the body green, with a violaceous tinge.

Genus CHALCOPHORA Solier

Chalcophora SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 278–279, pl. 10, fig. 9.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Buprestis*, pp. 7–19, pls. 2–4.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 21–22.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 77–78.—CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 77–78.—KERREMANS, Mon. Bupr., vol. 4, 1909, pp. 17–49, pl. 23.

Head more or less rugose, longitudinally impressed at the middle, and slightly wider in front than at vertex; front not narrowed by

the insertion of the antennae; epistoma short and arcuately emarginate in front; antennal cavities large, deep, rounded, and situated about equally distant between the anterior margin of epistoma and the inner margin of the eyes. Antennae rather robust, and nearly as long as the head and pronotum united; first joint moderately elongate and strongly clavate at apex; second very short and globular; third slightly shorter than the first, but more slender and cylindrical; following joints longer than wide, more obtusely dentate on the inner side, and becoming gradually shorter to the eleventh joint, which is oblong, the serrate joints armed with poriferous pores on both sides of the joints, but without distinct foveae. Eyes not very large, moderately convex, broadly oblong, and only slightly closer to each other on the vertex than at the front. Pronotum wider than long, moderately convex, and longitudinally sulcate or carinate at the middle; base bisinuate. Scutellum very small and nearly quadrate. Elytra elongate, sinuate at base, moderately convex, and strongly attenuate posteriorly; lateral margins more or less serrate posteriorly. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches long and oblique; metasternum feebly rounded in front and with a narrow longitudinal groove at the middle. Prosternum feebly convex; anterior margin sinuate and feebly produced at middle; prosternal process wide, flat, and with two longitudinal sulci. Posterior coxae strongly dilated internally; anterior margin sinuate; posterior margin strongly oblique. Legs rather robust; anterior and middle femora strongly swollen at middle, the posterior pair subcylindrical; tibiae subcylindrical, feebly enlarged at the apex, and the anterior pair with a longitudinal carina on the exterior margin; tarsi depressed, elongate, the first joint of the posterior pair as long as the following two joints united. First abdominal segment concave or sulcate at middle. Body robust, elongate-oval, attenuate in front, and more acuminate behind.

This genus is distributed throughout the Nearctic and Palaeartic Regions, and includes about 20 described species, of which only two have been recorded from the West Indies. One of these was originally described from Guadeloupe, and the other was introduced into Cuba, probably in pine timber from the United States. The species are closely allied, but the following table, which is taken from Kerremans Monograph, may be of some assistance in separating the two species.

KEY TO THE SPECIES

Elytra with the subsutural groove entire, attaining the base, though shallow and sometimes partially interrupted near the base; color above reddish-cupreous; sulcus on first abdominal segment pubescent, more distinctly in the male----- *humboldti* (Castelnau and Gory).

Elytra with the subsutural groove abbreviated in front, and only attaining the basal third or fourth; color above aeneo-nigris; sulcus on first abdominal segment glabrous in both sexes----- *virginiensis* (Drury).

CHALCOPHORA HUMBOLDTI (Castelnau and Gory)

Buprestis humboldti CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, p. 12, pl. 3, fig. 8.

Chalcophora humboldti FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 403 (separates p. 53).—KERREMANS, Mon. Bupr., vol. 4, 1909, p. 35.

The following is a translation of Castelnau and Gory's original description:

Reddish-cupreous and elongate, thorax strongly granulose; surface with elevated lines; elytra nearly smooth, with longitudinal costae and cupreous impressions. Length, $9\frac{1}{2}$ lines; width, $3\frac{1}{2}$ lines. Habitat Guadeloupe.

Body elongate and of a golden-coppery color. Head and thorax granulose, with a few smooth longitudinal lines, the latter nearly quadrate. Elytra nearly smooth at middle, with feeble longitudinal costae at the sides, the costae interrupted by two depressions. Body beneath golden-yellow, and granulose, the abdominal segments feebly impressed on each side.

Fleutiaux and Sallé (1890), and Kerremans (1909) both record this species from the type locality, probably only from the record given in the original description, since neither of these authors had examined specimens of it. No specimens of this species have been seen by the writer.

CHALCOPHORA VIRGINIENSIS (Drury)

Buprestis virginensis DRURY, Illustr. Nat. Hist., Exotic Ins., vol. 1, 1770, pp. 66–67, pl. 30, fig. 3.—HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 114–116, pl. 148, fig. 1.—SCHONHERR, Syn. Ins., vol. 1, pt. 3, 1817, p. 230.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, pp. 11–12, pl. 2, fig. 7.

Chalcophora virginensis WATERHOUSE, Biol. Centr.-Amer., Coleopt., vol. 3, pt. 1, 1882, p. 2; 1889, p. 167.—KERREMANS, Mon. Bupr., vol. 4, 1909, pp. 26–29.

Buprestis virginica GMELIN, Linnaeus, Syst. Nat., 13 ed., vol. 1, pt. 4, 1788, p. 1940, No. 110.

Buprestis cupreomaculatus GOEZE, Entom. Beitr., vol. 1, 1777, p. 596, No. 11. *Chalcophora novaeboracensis* FITCH, Trans. N. Y. State Agri. Soc., vol. 17, 1858, pp. 701–702, No. 220.

Chalcophora virginica CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 573 (separates p. 149).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 155–156.

Rather broadly elongate, rounded in front, slightly more attenuate behind, and moderately convex above; above aeneo or aeneo-cupreous in the depressions, with the reliefs brownish-black; beneath more reddish-cupreous and shining than above.

Head feebly convex, with a broad, deep longitudinal depression on the front, which is rather broadly and deeply sulcate at the middle, the sulcus becoming narrow and feebly impressed on the occiput; surface sparsely, coarsely and very irregularly punctate, the punctures variable in size, but becoming denser and finer along the margins of the eyes, also sparsely clothed with short cinereous hairs, especially along the eyes; epistoma broadly and very deeply arcuately emarginate in front, forming an obtuse tooth on each side of the emargination. Pronotum slightly more than one and one-half times as wide as long, slightly narrower in front than behind, widest near apical third; sides arcuately expanded to near the apical third, where they are broadly rounded or feebly angulated, then very feebly narrowed or parallel to the posterior angles, which are nearly rectangular; anterior margin arcuately emarginate, with an obsolete broadly rounded median lobe; base bisinuate, with the median lobe broadly rounded; surface with numerous irregular variable depressions at the sides and with two rather shallow longitudinal sulci at the middle, densely and irregularly punctate in the depression, the punctures irregular in size and shape, and becoming confluent at some places, the intervals finely, densely granulose, and with a few large remotely placed punctures. Scutellum very small and rounded. Elytra moderately convex, slightly wider than the pronotum at base; humeral angles obtusely angulated; sides broadly arcuately expanded behind the humeral angles, sinuate at the posterior coxae, then arcuately attenuate to the tips, which are rather acutely rounded, with a short acute tooth at the sutural margin, the lateral margins feebly serrate posteriorly. Each elytron with four more or less distinct longitudinal costae; the first rather broad, entire, extending along the suture and strongly expanded anteriorly, where it is connected to the suture and second costa; second costa formed by a series of four broad irregular reliefs, sometimes connected to each other by a slender smooth elevated line, and the two posterior reliefs connected to the first costa; third costa narrow, beginning at the humeral callosity and extending into a broad relief, situated midway between the third and fourth reliefs of the second costa, and connected to the fourth costa; fourth costa very narrow, not interrupted, without broader reliefs, extending from the humeral callosity to near the apex, and following the outline of the lateral margin; the reliefs smooth, with a few scattered fine punctures; depressions finely and densely punctate, the punctures becoming more or less confluent, and finely rugose. Abdomen beneath finely and very irregularly punctate, in some areas the punctures are more or less longitudinally confluent, sparsely clothed with moderately long, fine, cinereous hairs, and the intervals smooth and shining; first segment broadly but feebly longitudinally sulcate at middle; last segment

broadly, deeply arcuately emarginate at apex in the male, and acutely rounded in the female. Prosternum feebly convex, the surface sparsely and coarsely punctate, becoming coarsely rugose at the sides, sparsely clothed with long inconspicuous hairs; anterior margin nearly truncate in front; prosternal process nearly flat, the surface smooth, with a double row of irregularly placed coarse punctures, from which arises a series of rather long hairs, and which are more distinct in the male than in the female, the sides expanded behind the anterior coxal cavities, then arcuately emarginate and narrowed to the apex, which is rather narrowly rounded.

Length, 20-29 mm.; width, 6.5-10 mm.

This species was originally described by Drury from Virginia. It is a very common insect and the larvae infest various species of pines. It is distributed over the entire eastern part of the United States, and extends southward into Mexico and Central America. I have not seen any specimens from the West Indies, so the above description was made from a specimen collected in Virginia. Chevrolat (1867) records a single specimen having been collected in Cuba, which was probably imported from the United States. Gundlach (1891) states that it is not indigenous to Cuba, but has been introduced in ships from North America.

Genus HALECIA Castelnau and Gory

Pristiptera DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 88.

Prionophora DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 89.
(No described species included.)

Leptia (part) DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 89.
(No described species included.)

Halecia CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 108-114.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 23-25.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 69-71; Mon. Bupr., vol. 3, 1908-1909, pp. 336-425, pls. 20-21.

Acantha CASTELNAU and GORY, Mon. Bupr., vol. 1, 1838, pp. 1-3, pl. 1.

Head more or less depressed, distinctly wider in front than on vertex; front not narrowed by the insertion of the antennae, and sometimes feebly longitudinally grooved; epistoma emarginate in front; antennal cavities small, rounded, and situated under an elevated carina at a considerable distance from the inner margin of the eyes. Antennae short; first joint elongate and feebly clavate at apex; second short, obconic; third elongate, nearly as long as first joint, and feebly triangular; fourth nearly as long as third, but broader at apex; following joints triangular, slightly longer than wide, dentate on the inner side, except the last joint, which is oblong; the last eight joints armed with poriferous pores, and more or less distinct foveae on both sides of the joints. Eyes large, strongly convex, broadly oblong, and distinctly closer to each other on the

vertex than at the front. Pronotum wider than long, usually narrower in front than behind; base bisinuate; disk feebly convex and more or less sulcate. Scutellum small and transverse. Elytra rather convex, feebly lobed at base, and strongly attenuate posteriorly; lateral margins smooth or serrate posteriorly. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches rather long and oblique; metasternum truncate in front, with a shallow arcuate emargination at the middle, and a narrow longitudinal groove on the disk. Prosternum convex, anterior margin truncate or arcuately emarginate; prosternal process rather wide, feebly convex, and not sulcate at middle. Posterior coxae slightly dilated internally; anterior margin feebly sinuate; posterior margin slightly oblique. Legs slightly robust; anterior and middle femora strongly swollen at middle, the posterior pair subcylindrical; tibiae slender and subcylindrical; tarsi broad and depressed, the first joint of posterior pair as long as the following two joints united. Body rather robust, elongate, attenuate in front, expanded posteriorly, and attenuate or acuminate at apex.

The species of this genus are rather numerous in numbers, and are distributed throughout the Neotropical Region. Four species have been recorded from the West Indies, of which, only one has been seen by the writer. *Pristiptera* was used by Dejean (1833) for four species, three of which were undescribed, and the fourth being *blanda* described by Fabricius from Brazil.

The characters used in the following key are the same as those used by Kerremans for separating the species of this genus.

KEY TO THE SPECIES

1. Lateral margin of the elytra dentate posteriorly----- *verecunda* Chevrolat.
Lateral margin of the elytra not dentate posteriorly----- 2.
2. Tibiae cyaneo-purpureis; tarsi blackish----- *quadricolor* Chevrolat.
Tibiae and tarsi ferruginous or testaceous----- 3.
3. Elytra bronzy-green, with purplish reflection----- *erythropus* (Gory).
Elytra golden-green, with a bluish reflection----- *pyropus* Kerremans.

HALECIA VERECUNDA Chevrolat

Halecia verecunda CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7. 1867. pp. 573–574 (separates pp. 149–150).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 156–157, No. 792.—KERREMANS. Mon. Bupr., vol. 3, 1908, p. 346.

The following is a translation of Chevrolat's original description:

Elongate, gradually attenuate from behind to apex, opaque and blackish-green; head punctate, rounded, longitudinally sulcate and red, front and sides green; antennae black, the third joint nearly as long as the first; eyes fuscous, large, and oblong; thorax moderately convex, subquadrate, front straight, base broadly biarcuate.

anterior angles obtuse and declivous, the posterior ones acute, with a longitudinal impressed line at base, and the anterior margin green; scutellum smooth, rounded, and purpureous; elytra flattened, strongly cuneate, margin serrate, and the apex mucronate; each elytron with three fasciae and a longitudinal vitta toward the apex emerald-green, first fascia at base, second and third in front and behind the middle, short, oppositely obliquely placed ("vice versa oblique positis"), and punctate-striate, interstices vaguely and irregularly punctate; body beneath minutely and regularly punctate, green with an emerald-green tinge, and the stigmata golden-yellow; legs green, and the tarsi black. Length, 23 mm.; width, 4 mm. Cuba. From the collections of Gundlach and Poey.

This species and the following (*quadricolor*) are of unusual form for this genus, and rather resemble the female of *Anthaxia cyanicornis* Fabricius.

I have not seen any specimens of this genus from Cuba, and since the distribution of this species is probably confined to that island, the species remains unknown to the writer. Gundlach (1891) records this species from Bayamo, Cuba. This species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 792 in the Gundlach Museum in Habana, which is the specimen referred to by Gundlach.

HALECIA QUADRICOLOR Chevrolat

Halecia quadricolor CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 574 (separates p. 150).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 157, No. 1417.—KERREMANS, Mon. Bupr., vol. 3, 1909, pp. 413—414.

The following is a translation of Chevrolat's original description:

Elongate, densely punctate, red; beneath green and purple intermixed, legs cyaneo-purpureous, tarsi blackish; head densely punctate and red, around the eyes cyaneous, vertex green; palpi and antennae black; eyes oblong, fuscous; thorax red, subquadrate, and the front narrowed and straight; base bisinuate, its margin green; lateral margins deflexed, strongly arcuately reflexed; above with three deep longitudinal sulci, the dorsal line green, and deeply impressed at base; scutellum green, obscure, transverse and bifovate; elytra wider than pronotum at base, attenuate posteriorly, obliquely mucronate, obsoletely denticulate, punctate-striate, red, the suture broadly sulcate and green; epipleura bright cyaneous. Length, 24 mm.; width, 5 mm. Cuba. From the collections of Gundlach and Poey.

This species rather approaches in form and color to *Anthaxia suturalis* Olivier.

This is also a Cuban species, and no specimens have been seen which agrees with Chevrolat's description. Gundlach (1891) records it from the western part of Cuba. The species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 1417 in the Gundlach Museum in Habana, which is the specimen referred to by Gundlach.

HALECIA ERYTHROPUS (Gory)

Buprestis erythropus GORY, Mon. Bupr. Suppl., vol. 4, 1840, p. 126, pl. 22, fig. 124.

Leptia erythropus DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 89. (No description.)

Halecia erythropa FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 403 (separates p. 53).—KERREMANS, Mon. Bupr., vol. 3, 1909, p. 420.

Male.—Form narrowly elongate, navicular, and feebly convex; above dark bronzy-green, with strong violaceous, purpureous and cupreous reflections, and the elytra more or less ornated with irregular cupreous markings, which are frequently wanting; beneath similar to above, but more shining, the legs ferruginous, with a strong iridescent greenish reflection.

Head broadly but not deeply depressed, the depression extending to the margin of the eyes, and from the epistoma to the vertex, and with an obsolete narrow longitudinal groove on the occiput and vertex; surface coarsely and rather sparsely punctate, the punctures shallow and irregularly placed; intervals smooth; epistoma broadly, arcuately emarginate in front, with the outer angles of the emargination forming an obtuse tooth. Pronotum about one and one-half times as wide as long, base and apex about equal in width; sides feebly arcuately attenuate to the basal sixth, where they are strongly sinuate, then obliquely expanded to the posterior angles, which are somewhat projecting and rather acute; anterior margin broadly arcuately emarginate, with the median lobe rather distinct and subangulate; base feebly bisinuate, with a broadly rounded median lobe; lateral margins rounded and only obsoletely marked posteriorly; disk with a broad shallow longitudinal sulcus, which is interrupted at the middle, a transverse depression on each side along anterior margin, and a broad obsolete one on each side about midway between the median sulcus and lateral margin; surface sparsely and rather deeply punctate, the punctures irregular in size and arrangement, and becoming coarser at the sides; intervals smooth. Scutellum short, oblong, two times as wide as long, the surface smooth and shining. Elytra wider than pronotum at base, feebly expanded behind the humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are produced into an acute spine at the outer margin, and then strongly obliquely emarginate to the suture; lateral margins entire; each elytron with a short broad costa at apex, and several irregular obsolete impressions, which are sometimes wanting; surface striato-punctate, the striae feebly impressed, and the punctures fine and more or less confused in the striae, the intervals feebly convex, somewhat rugose toward the sides, and sparsely, irregularly punctate. Abdomen beneath finely and rather

sparingly punctate, the punctures becoming denser on the antero-lateral part of the segments, and sparsely clothed at the sides with rather long, fine recumbent hairs; intervals finely and densely granulose; first segment convex, and not sulcate at middle; last segment truncate at apex. Prosternum coarsely, sparingly punctate, and very sparsely clothed with short inconspicuous hairs, and the intervals smooth; anterior margin truncate; prosternal process feebly flattened on the top, and not longitudinally sulcate, the sides feebly expanded behind the anterior coxal cavities, then arcuately emarginate and attenuate to the apex, which is obtusely rounded.

Female.—Similar to the male, but with the last abdominal segment obtusely rounded at the apex.

Length, 12–15 mm.; width 3.5–5 mm.

This name was first used by Dejean (1823) for a species from North America, which he placed in his genus *Leptia*, but without describing either the genus or species. Gory (1840) described the species under the same name from the specimen in the Dejean collection, and placed it in the old genus *Buprestis*. It has been recorded by Fleutiaux and Sallé (1890) from Guadeloupe, as having been collected by Delauney during September at Camp Jacobs, and also by Vitrac at Trois Rivières and Petit Bourg on a species of Melastomaceae.

Specimens which I have determined as this species have been examined from the following localities. Coll. U. S. Nat. Mus.: Three specimens, Dominica, June and July, collected by H. W. Foote of the Yale Expedition of 1913; and one specimen from Guadeloupe (L. Defau). Coll. Amer. Mus. Nat. Hist.: One specimen, Gourbeyre, Guadeloupe. Coll. British Mus.: One specimen, labeled Dominica, G. A. Ramage, 97–67, May 12, 1888.

The elytral depressions are slightly more cupreous in the specimens from Guadeloupe, but there is considerable variation even in these specimens. It is just possible that these specimens represent the species described by Kerremans as *pyropus* from that island, but if so, I can not see any reason for separating the two species.

HALECIA PYROPUS Kerremans

Halecia pyropus KERREMANS, Ann. Soc. Ent. Belg., vol. 37, 1893, pp. 504–505.—KERREMANS, Mon. Bupr., vol. 3, 1909, pp. 419–420.

The following is a translation of Kerremans' original description:

Elongate, at apex attenuate, metallic golden-green, with a cyaneous tinge, the depressions on the head, pronotum and elytra are dark purpureo-violaceous; head granulose, the front excavated; pronotum trapezoidal, uneven, depressed on both sides, and the middle longitudinally sulcate; scutellum transverse; elytra punctate-striate, truncate and dilated at humeri, the apex attenuate and strongly muricate; each elytron with three impressions, first an elongate one on disk, the

second transverse, and placed behind the middle, and the third small and subapical. Body beneath punctate; legs brunneo-purpureous, and the tarsi green. Length, 16 mm.; width, 5 mm. The arrangement and form of the posterior part of the elytra, terminating into a point, gives this species the appearance of a *Dicerca*. Guadeloupe (Lherminier, by Chevrolat).

Genus ACTENODES Lacordaire

Actenodes DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 80; 3 ed., 1836, p. 90.—
LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 72–73.—KERREMANS, Wytsman's
Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 193–195.

Head vertical and much wider in front than on vertex; front flattened and narrowed by the insertion of the antennae; epistoma short and wide, and more or less emarginate or truncate in front; antennal cavities large, round, and situated at a considerable distance from the eyes. Antennae moderately long, variable, and dentate from the fourth joint, the serrate joints usually armed with poriferous foveae on the lower anterior margin of the joints (some of the species also have obsolete foveae on the upper side). Eyes very large, elliptical, inner margin very oblique and much closer to each other on the vertex than on the front. Pronotum much wider than long, and not closely applied to the elytra at the posterior angles; anterior margin arcuately emarginate; sides sinuate; base with a distinct median lobe. Scutellum small and triangular. Elytra variable, shagreened or finely punctured, with or without costae, rarely with the sides serrate near apex, lobed at base, and strongly attenuate posteriorly. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches elongate and somewhat triangular; metasternum feebly emarginate or truncate in front. Prosternum feebly convex in front, with the anterior margin more or less declivous; prosternal process flat, strongly constricted by the coxal cavities, behind which it is abruptly and arcuately expanded on each side into a sharp tooth, and with a large acute tooth at the apex, which fits into the sternal cavity. Posterior coxae strongly dilated internally; anterior margin nearly straight; posterior margin oblique. Legs rather robust; anterior and middle femora more or less swollen, the former nearly always dentate on the inner margin; tibiae normal, the anterior pair frequently arcuate in the males; tarsi rather short, the third joint deeply emarginate and divided into two long divergent spines, which extend beyond the fourth joint; tarsal claws simple or feebly expanded at base. Body oblong, rather broad, and more acuminate behind than in front.

The name *Actenodes* was first used by Dejean (1833) in the second edition of his Catalogue des Coléoptères, and in which he included *bellula* Mannerheim from Santo Domingo, *nobilis* Fabricius from Cayenne, and eight species of which no descriptions had been

published. In his third edition of the same work (1836), he gives in addition to the ones mentioned previously, *viridifasciata*, *calcarata*, and *chalybeitarsis*, all from Mexico and credited to Chevrolat, of which *viridifasciata* is only a manuscript name, and which was later described by Castelnau and Gory as *regularis*. Lacordaire (1857) published a description of the genus, and in which he placed a number of species, some of which were previously included in this genus by Dejean.

Actenodes is a rather large genus and has a wide distribution, the species being distributed throughout North, South, and Central America, Mexico, West Indies, and Africa. It is closely allied to *Chrysobothris* and *Colobogaster*, but can be easily distinguished from either of these two genera by the third joint of the tarsi having two long spines, which extend beyond the fourth joint.

KEY TO THE SPECIES

1. Elytra with distinct longitudinal costae----- 2.
Elytra without longitudinal costae----- 3.
2. Pronotum transversely impressed at base; elytral markings cupreous.
----- *marmorata* (Castelnau and Gory).
Pronotum with three longitudinal impressions; elytral markings aeneous.
----- *fulminata* (Schonherr).
3. Elytra with the discal spots distinctly embossed, and of a green color, narrowly margined with aureo-cupreous----- *bellula* Mannerheim.
Elytra with the discal spots not embossed----- 4.
4. Each elytron with a round aureo-cupreous spot at apical third; color above dark aeneous, with olivaceous and purplish reflections.
----- *auronotata* (Castelnau and Gory).
Each elytron with an oblique green fascia at apical third; color above reddish-cupreous----- *auronotata*, var. *jamaicensis* Fisher.

ACTENODES MARMORATA (Castelnau and Gory)

Chrysobothris marmorata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836,
pp. 31-32, pl. 6, fig. 45.

The following is a translation of the original description:

Dark aeneous; thorax with three not very deep foveae; elytra cupreous, and marbled violaceous. Length, 9 lines; width, $3\frac{1}{5}$ lines. Habitat Martinique.

Cupreous, with a feebly darker tinge. Head granulose, with a deep longitudinal groove at the middle, and two elevations between the eyes. Thorax transverse, with an impression at middle behind, and also one on each side, surface covered with small transverse rugae. Elytra granulose, with longitudinal costae, and ornated with an irregular blackish-violet spot at the base, and three irregular oblique sinuate fasciae of the same color, the posterior one situated at the apex. Body beneath and legs punctate and of a beautiful cupreous color. Tarsi violaceous.

This is certainly closely allied to *fulminata* Schonherr, but according to the description given by Castelnau and Gory it is a larger

species, and the elytral markings are cupreous, while in *fulminata* they are aeneous and differently arranged. In figuring *marmorata* the pronotum is shown as being transversely impressed along base, while in the description they say that the pronotum has an impression at the middle behind and another one on each side. Since their descriptions are very deficient, these three impressions may be connected transversely by a shallow groove, similar to some of the specimens of *auronotata*, in which case it would be transversely impressed as shown in the figure. Since Castelnau and Gory had both of the species before them when they described this species, I shall consider them as two distinct species. No specimens have been seen by the writer which would apply to the above description.

ACTENODES FULMINATA (Schönherr)

Buprestis fulminata SCHÖNHERR, Syn. Ins., vol. 1, pt. 3, App. 1817, p. 121, No. 166.

Actenodes signata BEAUMET-LAFARGE, Dejean, Cat. Coleopt., 2 ed., 1833, p. 80; 3 ed., 1836, p. 90. (No description.)

Actenodes cyanura CHEVROLAT, Silbermann's Rev. Ent., vol. 5, 1838, pp. 72-73.

Chrysobothris fulminata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836, pp. 37-38, pl. 7, fig. 52.

Actenodes fulminata LENG and MUTHLER, Bull. Amer. Mus. Nat. Hist., vol. 33, 1914, p. 430.

Form broadly elongate, moderately convex, attenuate in front, more acuminate posteriorly; and narrower behind than in front, glabrous and shining; head and pronotum aeneous, with a strong olivaceous and purpureous tinge; scutellum green; elytra nigro-violaceous, with irregular transverse acneous markings; beneath olivaceous-green, with the tarsi and last abdominal segment cyaneous.

Head feebly convex, front nearly flat, triangular, with a longitudinal groove extending from near the epistoma to vertex, the groove feebly impressed on the front, but becoming very deep on the vertex between the two nodules, which are broad, but not strongly elevated; surface densely, irregularly and deeply punctate, becoming strongly transversely scabrous on the anterior part; intervals nearly smooth, becoming obsoletely granulose on the occiput; epistoma feebly, broadly emarginate in front, with an obsolete median tooth; eyes large, very oblique and about two times as widely separated on the occiput as in *auronotata*. Pronotum strongly transverse, and moderately convex, two times as wide as long, apex and base about equal in width, widest at apical third; sides broadly rounded at apical third, then arcuately attenuate to the posterior angles, which are nearly rectangular; anterior margin arcuately emarginate, with an obsolete median lobe; base bisinuate, with a broad, feebly rounded median lobe; surface with a very broad longi-

tudinal median depression, deeper behind than in front, and on each side of which is a large, moderately deep, round depression, sparsely, deeply and rather regularly punctate on the disk, becoming coarsely, irregularly rugose toward the sides, the rugae long, strongly elevated, and widely separated; intervals finely and densely granulose. Scutellum very small, triangular, the sides about equal in length. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to behind middle, then obliquely attenuate to the tips, which are rather acute; lateral margins very coarsely serrate to near middle; each elytron strongly angularly lobed at base, with a feeble transverse basal impression, and four more or less distinct sinnuate longitudinal costae, none of which extend to the apex; surface densely, deeply and irregularly punctate, the punctures becoming confluent toward the sides; intervals densely and rather coarsely granulose; each elytron ornated with aeneous markings, which are very narrowly margined with cyaneous and arranged as follows: An elongate circle enclosing a dark area at base and extending backward forming the letter C, with the opening toward the suture; at basal third a broad transverse fascia, forming posteriorly the letter W between the first and second costae, and then extending transversely to the suture, and forward along the suture to the base; at the middle there is a very irregular zigzag fascia extending from the lateral margin and forming the letter M between the first and second costa, then obliquely backward to the suture at apical third, and following the suture to apex, where it is sometimes connected to a narrow band along the lateral margin, which extends forward to the apical third; there is also an oblong spot behind the humeral angle. Abdomen beneath moderately convex, sparsely but not very deeply punctate; intervals smooth and shining; last segment more densely punctured posteriorly, with the apex broadly sinuate and armed on each side with a tooth. Prosternum feebly convex, broadly truncate and declivous in front; surface sparsely and rather coarsely punctate, becoming irregularly striolate toward the sides; prosternal process feebly convex, strongly expanded behind the coxal cavities, the sides very long and acute, and extending between the anterior and middle coxae, the median tooth long and acute at apex. Posterior tibiae with a dense line of very long fine hairs on the inner margin.

Length, 15 mm.; width, 6 mm.

This species was described by Schonherr from Brazil, and the above description was made from a specimen donated to the United States National Museum by the British Museum, which was collected at Jatahy, Brazil, and determined by Kerremans as *fulminata* Schonherr. *Actenodes cyanura* was described by Chevrolat from Cayenne, and has been placed as a synonym of *fulminata* by Kerre-

mans. I have examined another specimen received from the British Museum from Cayenne, and labeled "*signata* Beaud.-Lafarge, *cyanura* Chevr." which agrees very well with Chevrolat's description of *cyanura*, and which only differs from the specimen of *fulminata* from Brazil in a few minor details; being smaller (12.5 mm. long; and 5 mm. wide), head not quite as densely rugose, median depression on pronotum more obsolete anteriorly, and the elytra more sparsely and finely punctate, otherwise they are the same, which verifies Kerremans conclusions as to the synonymy.

So far, this species has only been recorded in the literature as occurring in the West Indies, by Leng and Mutchler in their Preliminary List of the Coleoptera of the West Indies.¹⁷ This record was probably copied from Linell's card catalogue of the West Indian Coleoptera, in which he had recorded the original description of *cyanura* Chevrolat, and erroneously cites the locality as Martinique instead of Cayenne. The species probably does not occur in the West Indies, its distribution being restricted to South America, but the above description is included, so that in case its distribution should extend into the Antilles, it can be easily identified.

ACTENODES BELLULA Mannerheim

Actenodes bellula, var. *sobrina* MANNERHEIM, Dejean, Cat. Coleopt., 2 ed.. 1833, p. 80; 3 ed., 1836, p. 90. (No description.)

Actenodes bellula MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, pp. 79–80.—CHEVROLAT, Ann. Soc. Ent. Franee, ser. 4, vol. 7. 1867, p. 584 (separates p. 160).

Form elongate, and moderately convex, attenuate in front, more acuminate posteriorly, and narrower behind than in front, subopaque and glabrous; dark aeneous, with a feeble olivaceous or purpureous tinge; scutellum aeneo-viridis; each elytron ornated with four green spots (the two discal ones strongly embossed), which are narrowly marginal with aureo-cupreous, and sometimes the margin behind scutellum narrowly cupreous; beneath aeneous, with an olivaceous tinge, and more shining and purpureous than above; tarsi cyaneous.

Length, 10–14 mm.; width, 4–5.5 mm.

This species is very closely allied to *auronotata* Castelnau and Gory, but differs from it as follows: Form more slender, elytra more acuminate posteriorly, surface more finely punctured, and the spots smaller, round, and the four discal ones distinctly embossed, and of a clearer green color, narrowly margined aureo-cupreous; sides of prosternum more coarsely punctate, and the punctures more confluent.

¹⁷ Bull. Amer. Mus. Nat. Hist., vol. 33, 1914, p. 430.

Dejean (1833) lists *bellula* from Cuba and *bellula*, var. *sobrina* Mannerheim, from Santo Domingo, without giving any descriptions. *Actenodes bellula*, var. *sobrina* as used by Dejean is a manuscript name, but Mannerheim (1837) under the name of *bellula* gives a description of the *A. bellula*, var. *sobrina* Mannerheim listed by Dejean in his Catalogue from the island of Santo Domingo, and in which he writes, "Not possessing the real *Actenodes bellula* Dejean, I have been obliged to describe the variety." Since no description had been published of *bellula*, this name must be applied to the species described by Mannerheim from Santo Domingo, and *sobrina* Mannerheim will have to be placed as a synonym of that species. The specimen in the Dejean Collection under *bellula* Dejean from Cuba, will be the true *auronotata* Castelnau and Gory.

Chevrolat (1867) records this species from Santo Domingo in the collection of (Dejean) Mnizech, and considers it distinct from *auronotata*.

The species seems to be confined to Santo Domingo, and I have examined specimens from the following localities: Coll. British Mus.: Haiti, from the Chevrolat Collection. Coll. Mus. Comp. Zool.: Petionville and Manneville, Haiti (W. M. Mann). Coll. U. S. Nat. Mus.: Port-au-Prince, Haiti (R. J. Crew) received from H. W. Wickham.

ACTENODES AURONOTATA (Castelnau and Gory)

Actenodes bellula DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 80; 3 ed., 1836, p. 90. (No description.)

Chrysobothris auriguttata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836, p. 20, pl. 4, fig. 30; addenda, p. 6.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857, (French edition) p. 64, pl. 7, fig. 8; (Spanish edition), vol. 7, 1857, p. 29; vol. 8, pl. 7, fig. 8.

Actenodes auronotata CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 584, (separates p. 160).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 168, No. 201.

Actenodes bella LECONTE, Trans. Amer. Philos. Soc., vol. 11, 1859, pp. 240-241.

Buprestis auriguttata STURM, Catal. Insecten Sammlung, 1826, p. 104.

Chrysobothris auriguttata STURM, Catal. Käfer Sammlung, 1843, p. 61.

Form broadly elongate and moderately convex, attenuate in front, more acuminate posteriorly, and narrower behind than in front, subopaque and glabrous, dark aeneous, with a feeble olivaceous or purpureous tinge; scutellum aureo-viridis; elytra ornated with aureo-viridis markings, sometimes the markings strongly cupreous, but not embossed; beneath aeneous, with an olivaceous tinge, and more shining and purpureous than above; tarsi cyanous.

Head feebly convex, front nearly flat, triangular, with a feeble longitudinal groove extending from near the epistoma to the vertex,

where it terminates abruptly into an acute elevation, there is also on each side of the groove at the posterior part of the front an obsolete nodule; surface densely, irregularly and deeply punctate, the punctures very irregular in size, and becoming somewhat confluent on the epistoma; intervals densely and obsoletely granulose; epistoma broadly and feebly emarginate, broadly rounded on each side of the emargination, and with a short obtuse tooth at the middle; eyes very large, rather acutely rounded at bottom, and nearly contiguous on occiput. Pronotum strongly transverse and moderately convex, two times as wide as long, slightly narrower in front than behind, widest at base, with a distinct arcuate lateral carina, which curves inward toward the transverse impression; sides feebly arcuately rounded to the posterior angles, which are somewhat projecting and widely separated from the elytra (sometimes the sides are rather strongly rounded at apical third, then feebly concave to the posterior angles); anterior margin arcuately emarginate, with a feeble median lobe; base bisinuate, with the median lobe broadly and feebly rounded; surface abruptly declivous at the sides, with a transverse depression at the basal third, which is more deeply impressed on each side, and densely, irregularly and coarsely punctate, the punctures more elongate on the disk, and becoming somewhat confluent and rugose toward the sides; intervals finely, densely granulose. Scutellum triangular, all sides about equal in length. Elytra distinctly wider than pronotum at base, and with a feeble, broad basal depression; sides broadly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly serrate to middle; base acutely lobed; surfaced without costae, densely, coarsely and deeply punctate, the punctures somewhat irregularly placed, becoming nearly confluent at sides and on basal region; intervals finely and densely granulose; each elytron ornated with aureo-viridis spots as follows: An oblong spot at base near humeral angle; two round spots placed transversely at middle, one near the lateral margin, the other on disk at middle; a round spot on disk at apical third, slightly closer to the suture than the median spot; the suture behind scutellum and near apex, and the lateral margin at humeral angle and near apex is also sometimes aureo-viridis with a cupreous tinge. Abdomen beneath moderately convex, sparsely and irregularly punctate, the punctures shallow and becoming somewhat striolate on the sides of basal segment; intervals densely, obsoletely granulose, and with an obsolete longitudinal impression behind each puncture; last segment broadly truncate or obsoletely rounded at apex, with the angles prominent, armed on each side with a tooth in the female, and broadly and feebly angularly emarginate in the male. Prosternum short, broadly truncate and strongly declivous

in front, the surface densely, coarsely punctate, and transversely rugose on the anterior part; prosternal process flat, very strongly expanded behind the coxal cavities, the sides long, very acute, and separating the anterior and middle coxal cavities, the median tooth at apex long and acute.

Length, 10–15 mm.; width, 4.5–6.5 mm.

This species was described by Castelnau and Gory (1836) from Cuba, and in figuring the species used the name *auronoto*, but this was changed to *auronotata* in their addenda (p. 6). LeConte (1859) described the same species from a single specimen from Liberty County, Georgia, United States, under the name of *bella*. Kerremans¹⁸ has erroneously placed this species as a synonym of *bellula* Mannerheim.

Recorded from Cuba by Jacquelín Duval as the "Golden-marked Chrysobothris." Gundlach (1891) records it as found throughout the island of Cuba. Chevrolat (1867) says that it found over the entire island and in the collections of Gundlach, Poey, and Chevrolat. I have examined specimens from the following localities. Coll. Amer. Mus. Nat. Hist.: Rio Seco, San Carlos Estate, Guantanamo, Cuba, June 20, 1912; male and female, Guantanamo, Cuba (Chas. T. Ramsden). Coll. Carnegie Mus.: Nueva Gerona, Isle of Pines, July 23, 1912. Coll. British Mus.: Cuba. Coll. U. S. Nat. Mus.: Trinidad, Cuba, April–May, 1912 (Joe Merrill); Savannah, Georgia; Lake Worth, Florida, June 4; and Biscayne, Florida May 27 (Hubbard and Schwarz); Marathon, Florida, Mar. 8, 1919 (Schwarz). Coll. S. C. Bruner: One specimen, Santiago de las Vegas, Cuba, May 20, 1923 (J. Acuna). Coll. Acad. Nat. Sci. Philad.: One specimen, Cuba (Poey Coll. No. 340). This species is also represented in the Gundlach Museum in Habana by a single example labeled No. 201, which was not available for study.

ACTENODES AURONOTATA, var. JAMAICENSIS, new variety

Form broadly elongate and moderately convex, attenuate in front, more acuminate posteriorly, and narrower behind than in front, moderately shining and glabrous; head reddish-cupreous, with the reliefs olivaceous-green; pronotum reddish-cupreous, and somewhat olivaceous-green on disk; scutellum green; elytra reddish-cupreous, with the base, suture, posterior half of lateral margin, narrowly margined with green, and each elytron ornated with bright green spots as follows: A large transverse spot at base: two large nearly confluent spots placed transversely just in front of middle, the outer one smaller, more oblong, and placed near the lateral margin, the other one large, round, and placed on the disk; and an oblong fascia

¹⁸ Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, p. 194.

at apical third, which does not extend to the lateral margin nor suture; beneath more shining than above, olivaceous-green with a strong reddish-cupreous reflection, the legs more reddish-cupreous, and the tarsi cyaneous.

Length, 13 mm.; width, 5.5 mm.

Type locality.—Jamaica.

Type.—W. J. Holland Collection.

Paratype.—Cat. No. 26807, U.S.N.M.

Described from two specimens kindly loaned by Dr. W. J. Holland, and which were collected by F. Klages. There is also a specimen loaned by the British Museum and labeled Jamaica 78-22, which I have placed with this variety. It differs from the type only in coloration, being more brownish-green, and not so reddish-cupreous as in the type.

This species is very closely allied to *auronotata* Castelnau and Gory, but at least should be separated from that species as a good variety. It differs from it in the coloration, which is of a reddish-cupreous color, more shining, and not quite as convex, the elytra not quite as densely punctate and the punctures more widely separated, the base, suture, and posterior half of elytra margined with green, elytral spots bright green, the two in front of middle larger and nearly confluent, and with a short oblique fascia at apical third.

Genus CHRYSOBOTHRIS Eschscholtz

Chrysobothris ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9; reprint, p. 8.

Chrysobothris SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 310-311, pl. 12, fig. 29.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 75-76.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836-1837, pp. 1-59, pls. 1-10.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 183-192.—HORN, Trans. Amer. Ent. Soc., vol. 13, 1886, pp. 65-124, pls. 2-7.

Odontomus KIRBY, Richardson's Fauna Bor. Amer., vol. 4, 1837, p. 156.

Head vertical, much wider in front than on vertex; front even or uneven, narrowed by the insertion of the antennae, and frequently separated from the vertex by a sharp transverse carina; epistoma broad, more or less sinuate or emarginate in front, and constricted posteriorly by the antennal cavities, which are small, rounded, and situated at a considerable distance from the eyes. Antennae moderately long; first joint elongate, clavate and feebly arcuate; second very short and globular; third elongate and more or less clavate; the first three joints as long as the following joints united; following joints triangular, usually transverse, and armed with a poriferous fovea situated on the interior margin of the joints. Eyes very large, elongate, inner margins very oblique, and much nearer to each other on vertex than at the front. Pronotum much wider than long, and variable in shape; base strongly bisinuate, frequently lobed at the

middle, the lobe sometimes strongly produced and truncate. Scutellum very small and triangular. Elytra variable, lobed at base, strongly attenuate posteriorly, with the sides near apex frequently serrate. Sternal cavity formed by the mesosterum and metasternum; mesosternum divided, the lateral branches variable in shape; metasternum truncate in front, with a very feeble emargination at the middle. Prosternum flat or convex; anterior margin variable; prosternal process constricted by the coxal cavities, behind which it is strongly expanded, with a large acute tooth at the middle, which fits into the sternal cavity. Posterior coxae strongly dilated internally; anterior margin subsinuate; posterior margin oblique. Legs rather robust; femora swollen at middle, and the anterior pair more robust, sharp on the inner margin and armed with a large obtuse tooth (very rarely the tooth is absent); anterior and middle tibiae more or less arcuate; posterior pair straight; tarsi compressed, first joint of posterior pair rather long, third joint feebly emarginate, and not armed with two long spines, the fourth very short; tarsal claws simple. Body oblong, rather broad, rarely elongate, and more attenuate behind than in front.

The species of this genus are very numerous, and are found in nearly all parts of the world. Some of the species are of great economic importance, one of which occurs throughout the West Indies has become very injurious to the Australian Pine (*Casuarina equisetifolia* Forster) in the southern part of Florida, where this plant has been introduced for ornamental purposes. Of the other species found in this region, practically nothing is known of their life histories.

This genus is closely allied to *Actenodes*, but can be easily separated from that genus by the absence of the two long spines on the third joint of the posterior tarsi.

KEY TO THE SPECIES

1. Base of pronotum produced into a large rectangular lobe at middle and nearly covering the scutellum; prosternal process nearly smooth and very wide between the anterior coxal cavities, nearly two times as wide as the cavity. *sexpunctata* (Fabricius).
- Base of pronotum not produced at middle, at most with only a broadly rounded median lobe; scutellum not covered; prosternal process coarsely punctate and not much wider than the anterior coxal cavities. 2.
2. Pronotum uneven, with distinct depressions and elevations. 3.
- Pronotum regularly convex, without depressions or elevations. 6.
3. Eyes nearly confluent on occiput, separated by less than one-fourth the distance between the antennal cavities. 4.
- Eyes more widely separated on the occiput, separated by at least one-half the distance between the antennal cavities. 5.
4. Anterior femora with a large obtuse tooth on outer margin; posterior foveae on elytra obcordate and situated between the second and fourth

- costae; last abdominal segment of female with two shallow semi-circular emarginations at apex----- *tranquebarica* (Gmelin).

Anterior femora without a tooth on outer margin; posterior foveae on elytra irregular and situated between the first and fourth costae; last abdominal segment of female broadly arcuately emarginate at apex.

----- *tumida* Chevrolat.

5. Elytra acuminate posteriorly and produced into a spine at apex.

----- *antillarum* Fisher.

Elytra broadly rounded at apex----- *dentipes* (Germar).

6. Elytra acuminate at apex and prolonged into a spine at middle of each elytron----- *bella* Fisher.

Elytra rounded at apex, without a distinct median spine on each clytron----- 7

7. Sides of pronotum strongly angulated near the apical angles----- 8

Sides of pronotum not angulated----- 12.

8. Pronotum with transverse green, violaceous, and reddish-cupreous fasciae

----- *quadrimaculata* (Fabricius).

Pronotum unicolored----- 9.

9. Elytra with two green fasciae----- *lepidia* Castelnau and Gory.

Elytra without green fasciae, but with round green or concolorous depressions----- 10

10. Elytral spots feebly cupreous or concolorous, the posterior two placed transversely----- *megacephala* Castelnau and Gory.

Elytral spots green, the posterior two placed obliquely----- 11.

11. Epistoma with a narrow acutely rounded emargination at middle; elytral spots large, and with a green humeral spot on each elytron.

----- *chlorosticta* Thomson.

Epistoma broadly angularly emarginate in front; elytral spots small, and without the green humeral spots----- *parvofoveata* Fisher.

12. Sides of pronotum widest near apical angles----- 13.

Sides of pronotum regularly arcuate, widest near the middle----- 16.

13. Pronotum dark aeneous; elytra violaceous-black, with transverse green and reddish-cupreous fasciae----- *thomae* Kerremans.

Pronotum reddish-cupreous or violaceous----- 14.

14. Pronotum violaceous-green; elytra purpureous, with transverse green fasciae----- *wolcotti* Fisher.

Pronotum reddish-cupreous; elytra brownish-aeneous, with greenish or violaceous markings----- 15.

15. Each elytron with the base and two round discal spots green, and the basal and median foveae deeply impressed; pronotum with rather sparsely placed elongate punctures----- *hispaniolae* Fisher.

Each elytron with the base, suture at basal fourth, and two transverse fasciae green or olivaceous, the median foveae only feebly impressed; pronotum with rather densely placed round punctures.

----- *thoracica* (Fabricius).

16. Anterior femora with the tooth serrate on the exterior margin.

----- *insulana* Fisher.

Anterior femora with the tooth not serrate on the exterior margin----- 17.

17. Elytral markings golden-green; antero-median spot transversely oblique and usually connected along the lateral margin with the transverse basal fascia; pronotum arcuately rounded at sides----- *sexfasciata* Schaeffer.

Elytral markings bluish-green, large, oblong, and not connected along the lateral margin to the basal fascia; pronotum feebly arcuately rounded and nearly parallel at the sides----- *sexfasciata*, var. *jamaicensis* Fisher.

CHRYSOBOTHRIS SEXPUNCTATA (Fabricius)

Buprestis impressa OLIVIER, Entomol., vol. 2, gen. 32, 1790, pp. 44-45, pl. 5, fig. 42 (Name preoccupied); Enc. Method, vol. 5, *Buprestis*, 1790, p. 226, no. 67.—HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, p. 233, pl. 150, fig. 4.

Buprestis sexpunctata FABRICIUS, Syst. Eleuth., vol. 2, 1801, p. 206, no. 111.—SCHÖNHERR, Syn. Ins., vol. 1, pt. 3, 1817, p. 255, no. 216.

Buprestis splendens VOET, Catal. Coleopt., vol. 1, 1801, p. 96, pl. 51, fig. 20.

Colobogaster sexpunctata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836, p. 9, pl. 2, fig. 7.

Chrysobothris sexpunctata WATERHOUSE, Biol. Centr.-Amer., Coleopt., vol. 3, pt. 1, 1887, p. 35.

Male.—Form broadly oblong, and moderately convex, subopaque; color green, with a strong cupreous or aureous tinge, each elytron ornated with three round green impressed spots, and arranged as follows: One at the basal lobe, the second on middle of disk just in front of the middle, and a smaller one at apical third, placed closer to the lateral margin than the suture; beneath green, tip of abdomen and tarsi cyaneous.

Head nearly flat, with the front long, triangular, and the sides obliquely narrowed to the apex; occiput rather narrow and feebly longitudinally carinate, front with a broad transverse crescent-shaped depression, which is more deeply longitudinally impressed at the middle, causing an arcuate elevation behind and two semi-circular elevations in front, there is also a narrow deep groove extending arcuately around the antennal cavities, and connected to a much deeper transverse groove behind the epistoma; vertex with an obsolete chevron-shaped groove; surface coarsely and rather densely punctate, the punctures somewhat confluent on the front, and irregularly placed; intervals finely and densely granulose; eyes very large, strongly convex, about evenly rounded at bottom and top, and separated on the occiput by one-half the distance between the antennal cavities, which are surrounded by a narrow circular depression, bordered posteriorly by a sharp arcuate carina; epistoma broadly angularly emarginate at middle, with the lobe on each side strongly angulated at middle; antennae rather long, third joint cylindrical, clavate, and about as long as the following four joints united. Pronotum strongly transverse, one and one-half times as wide as long at median lobe, widest just in front of middle, apex and base about equal in width; sides obliquely expanded to near middle, where they are emarginate and abruptly declivous, then arcuately rounded to the posterior angles, which are acute, the lateral margin sharply defined, extending from base to apical third and not visible from above; anterior margin nearly straight, with an obsolete median lobe; base very deeply arcuately emarginate on each side at the elytral lobe, with the median lobe strongly produced

backward, and feebly broadly rounded at the apex; surface feebly convex, with a rather deep, round depression on each side of disk in front of elytral lobe, sparsely and rather deeply punctate, the punctures irregular in size and well separated; intervals finely and densely granulose. Scutellum very small and nearly concealed by the median lobe of pronotum. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are produced into an acute tooth near the suture; lateral margins finely, obsoletely serrate to near the middle, the teeth very short and irregularly placed; humeri rather prominent; base produced into a broadly rounded lobe; surface finely and rather densely punctate, the intervals obsoletely granulose; each elytron with an obsolete longitudinal costa along suture behind the middle, a similar one along the lateral margin, and with three round green depressed spots as noted above. Abdomen beneath densely and finely punctate, with spots of dense pubescence on the sides of the segments, and the intervals obsoletely granulose and more shining than above; first segment feebly impressed at middle; last segment deeply longitudinally concave, and the lateral margins with a distinct emargination near the apex, without a serrate submarginal ridge, the apex deeply and arcuately emarginate, with a strongly elevated longitudinal carina on each side of the emargination. Prosternum with a broadly rounded median lobe in front, surface somewhat gibbose, sparsely and very finely punctate, and the intervals obsoletely granulose; prosternal process feebly convex, very wide between the coxal cavities, only feebly dilated behind them, and the apex with a short triangular tooth. Femora robust; anterior pair with a broad round obtuse tooth on the outer edge, placed closer to the apex than base, and strongly dentate on the exterior margin. Anterior and middle tibiae strongly arcuate, the former flattened on the inner surface, but without any dilatation; the posterior pair straight and subcylindrical.

Female.—Differs from the male in having the first abdominal segment more deeply depressed at middle, and the apex of the last ventral segment not as deeply emarginate, and the emargination more broadly, and not acutely arcuate.

Length, 15 mm.; width, 6.5 mm.

Described from South America by Fabricius without giving any definite locality. The species is rather common throughout the northern part of South America and has been recorded from Nicaragua, but has not been previously reported from the West Indies. In the United States National Museum collection are two specimens labeled Barbados, W. I., February 2, 1908 (F. J. Clarke-Ballou No. 969).

CHRYSOBOTHRIS TRANQUEBARICA (Gmelin)

- Buprestis impressa* FABRICIUS, Mant. Ins., vol. 1, 1787, p. 182, no. 61.
(Preoccupied.)
- Buprestis tranquebarica* GMELIN, Linnaeus, Syst. Nat., 13 ed., vol. 1, pt. 4, 1788, p. 1932, no. 74.
- Buprestis excavata* OLIVIER, Enc. Method., vol. 5, 1790, *Buprestis*, p. 232, no. 95.—FABRICIUS, Ent. Syst., vol. 1, pt. 1, 1792, p. 206, no. 84; Syst. Eleuth., vol. 2, 1801, p. 205, no. 105.
- Chrysobothris fraterna* MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, pp. 75–76.
- Chrysobothris rugosa* MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, pp. 74–75.
- Chrysobothris denticulata* CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, p. 46, pl. 8, fig. 62.
- Chrysobothris denticollis* GORY, Mon. Bupr. Suppl., vol. 4, 1840, p. 178, pl. 30, fig. 173.
- Chrysobothris impressa* CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 586 (separates p. 162).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 169–170; An. Soc. Espan. Hist. Nat., ser. 2, vol. 22, 1894, p. 623.—STAHL, Fauna de Puerto Rico, 1882, p. 171.
- Chrysobothris tranquebarica* FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 404 (separates p. 54).—FISHER, Proc. Ent. Soc. Wash., vol. 20, 1918, pp. 173–177.—SNYDER, Journ. Agri. Research, vol. 16, 1919, pp. 155–163, pls. 18–21, text figs. 1–2.

Male.—Form short, rather broad, and strongly depressed, subopaque; head cupreous or aeneous, with the epistoma auro-viridis; pronotum and elytra dark aeneous; each elytron with four foveae, a deep one at basal lobe, a more shallow one near humerus, a large bilobed one on disk near middle, interrupting the second costa, and an obcordate one at apical third, situated between the second and fourth costae, usually the foveae are concolorous, but sometimes the discal ones are of a lighter shade, and rarely of a reddish-cupreous color; beneath dark aeneous and more shining than above.

Head flat, with the front triangular and the sides very strongly obliquely narrowed to the vertex; occiput very narrow, and with a distinct longitudinal carina, which is sometimes feebly forked anteriorly and forming a chevron; front flat, deeply transversely impressed behind the epistoma, with a short sinuate carina behind each antennal cavity, and a more elevated one at middle of front, the carinae not extending entirely to the margins, there is also a narrow groove extending arcuately around the antennal cavities and margined posteriorly by a short elevated carina; surface densely and coarsely punctate, the punctures confluent, and the reliefs forming a network of irregular polygonal areas, rather densely clothed with very fine, long inconspicuous hairs; eyes very large, strongly convex, more acutely rounded on top than at bottom, and nearly confluent on the occiput; epistoma narrow, elevated, broadly triangularly emarginate at middle, with the lobes broadly rounded; antennae

rather long, very pubescent, third joint as long as the following three joints united, the outer joints compact. Pronotum strongly transverse, more than two times as wide as long, widest along middle, slightly narrower in front than behind; sides obliquely expanded from apex to apical third, then nearly parallel and feebly sinuate to basal third, and finally arcuately attenuate to the posterior angles, which are nearly rectangular; anterior margin arcuately emarginate, without a distinct median lobe; base arcuately emarginate on each side at the elytral lobe, with a broadly rounded median lobe, which is subtruncate in front of scutellum; disk moderately convex, with an obsolete median depression, on each side of which, is an oblique post-apical one, and three other feebly impressed ones between the middle and side; surface coarsely and deeply punctate, the punctures well separated on the disk, but becoming denser and somewhat confluent at the sides; intervals nearly smooth. Scutellum moderately large, longer than wide, and the surface obsoletely granulose. Elytra wider than pronotum at base, but about equal in width to it at middle; sides broadly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are obtusely rounded; lateral margins strongly serrate to the humeral angles: humeri moderately prominent; base with a rather acutely angulated lobe; disk feebly convex, and each elytron with four costae, the first extending to apex along suture, elevated to basal third, then continuing as a smooth line to basal fovea, the second feebly elevated, beginning at the basal depression, interrupted by the median fovea, and continuing to the posterior fovea, the third feebly elevated, and extending between the median and posterior foveae, and the fourth rather strongly elevated, extending along the lateral margin behind the posterior fovea, but not attaining the apex; surface coarsely and densely punctate, the punctures regular in size, but becoming denser and more confluent toward the sides; intervals smooth. Abdomen beneath sparsely and very coarsely punctate, the punctures elongate, with the posterior margins not well defined, sparsely clothed with long cinereous hairs, the intervals obsoletely granulose, sides of segments with flat smooth spaces and the posterior angles prolonged into an acute tooth; first segment broadly concave; last segment with the lateral margins entire, with a strongly elevated serrate submarginal ridge, and deeply arcuately emarginate at the apex. Prosternum broadly rounded in front, and without a median lobe; surface transversely depressed along anterior margin, sparsely, finely punctate, transversely rugose, and sparsely clothed with long cinereous hairs; prosternal process flat, strongly expanded behind coxal cavities, and the apex with a long triangular tooth. Femora robust, anterior pair with a large obtuse tooth on the outer

edge, situated closer to the apex than base, and feebly dentate on the exterior margin. Anterior tibiae suddenly reflexed at middle and not dilated at apex; middle pair strongly arcuate; posterior pair straight.

Female.—Differs from the male in having the front of head less pubescent and the chevron on vertex more distinct, anterior and middle tibiae nearly straight, the last ventral segment of abdomen with a broad median carina at base, a depression on each side, and the apex with two shallow semi-circular emarginations, the median tooth short and the lateral ones long and acute.

Length, 12–16 mm.; width, 5–7 mm.

There has been considerable confusion in regard to the identification of this species. This insect is a common and destructive enemy of the red mangrove (*Rhizophora mangle* Linnaeus) but did not become of any great economic importance until about the year 1916, when it attacked the Australian Pine (*Casuarina equisetifolia* Forsster) planted in southern Florida for shade and ornamental purposes. As this insect is rather widely distributed throughout the West Indies, and the Australian pine is also being planted in these islands, it may become an economic problem in that region. The specimens do not seem to vary except in the coloration of the elytral foveae, in some specimens the foveae are unicolorous with the elytra, while in others they are distinctly purplish. It has a rather wide distribution, having been taken in nearly all of the Antilles and the southern part of Florida. So far, there are no authentic records of it having been collected in Cuba, and this is rather strange, since its natural food plant is found on this island. The only other species with which it could be confused is *tumida* Chevrolat, described from Cuba, but is easily separated from that species by the anterior femora having a large obtuse tooth on the outer margin.

Fabricius (1787) described the species from "Tranquebarica" under the name *impressa*, which he had previously used (1775) for another species from "Indiis." Gmelin (1788) proposed the new name *tranquebarica* for this species. Olivier (1790) proposed a new name *excavata* for the same species, and this name was used by Fabricius in all his later works. Fabricius and Olivier, either did not know of Gmelin's work, or would not recognize his names, as the name *tranquebarica* was not used by either of these writers in their works. Mannerheim (1837) described the species as *fraterna* from Porto Rico, and *rugosa* from an unknown locality. Castelnau and Gory (1837) described *denticulata* from Guadeloupe, and gives an excellent figure of the species, which is the species found in Florida, but in their addenda places it as a synonym of *fraterna* Mannerheim. Gory (1840) described *denticollis* from Colombia, which is not different from *denticulata*. Chevrolat (1867) records

it from Santo Domingo and Guadeloupe, in the collection of the author, and writes that it is common in these two islands and probably will be found in Cuba. Gundlach (1891) records it from the same localities. Fleutiaux and Sallé (1890) record it from Guadeloupe: Camp Jacobs (Delauney); Basse-Terre, "dans les poteaux de la cour du séminaire" (P. Coste) (Vitrac). Snyder (1919) records the habits of this species in Florida and gives methods for combating it. It is also recorded by Gundlach (1894), and Stahl (1882) from Porto Rico.

Specimens have been examined from the following localities: Coll. British Mus.: St. Domingue and Guadeloupe (Coll. Chevrolat); St. Thomas; Caliveny Est., windward side, Grenada (H. H. Smith). Coll. U. S. Nat. Mus.: Higueral, Santo Domingo, April 11, 1913 (J. R. Johnson); Mayaguez, Porto Rico, May 20, 1914 (R. H. Van Zwalenburg); Higueral, Santo Domingo, February, 1916 (E. G. Smyth). Coll. H. W. Wickham: Port-au-Prince, Haiti (R. J. Crew). Coll. Mus. Comp. Zool.: Grande Riviere, St. Marc and Cape Haitien, Haiti (W. H. Mann). Coll. Porto Rico Exp. Sta.: San Sebastian, Porto Rico, April 20, 1921 (G. N. Wolcott). Coll. Amer. Mus. Nat. Hist.: Mangrove Cay, Andros Island, Bahamas, May-June (W. H. Mann); Mayaguez, Porto Rico, May 30, 1914 (R. H. Van Zwalenburg); Sanchez, May 24, 1915, and San Lorenzo, June 29, 1915, Dominican Republic (F. E. Watson); Mannville, Gaure road, Haiti, Feb. 6, 1922 (F. E. Watson).

CHRYSOBOTHRIS TUMIDA Chevrolat

Chrysobothris tumida CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 585 (separates p. 161).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 168-169, no. 839.

Female.—Form short and broad, strongly depressed, subopaque; color above dark aeneous, with a strong purpureous reflection; each elytron with ten feeble purpureous or concolorous foveae, four of which are distinct and the remainder more or less obsolete, and arranged as follows: A deep round one at basal lobe, a narrow transverse obsolete one along base near humeral angle, a broad and deeper one behind the second, a broad obsolete one along suture behind the first, three small obsolete ones along lateral margin behind the humerus, a large distinct bilobed one on disk near middle, interrupting the second costa, a distinct zigzag one at apical third, situated between the first and fourth costae, and partially interrupted by the third coata, and an elongate obscure one near the apex; beneath aeneous, more shining than above, and with strong purpureous reflections.

Head flat, with the front triangular, and the sides very strongly obliquely narrowed to the vertex; occiput very narrow and long-

tudinally carinate; front flat, deeply transversely impressed behind the epistoma, and with two transverse irregular elevations, which are more or less obsolete and extending nearly to the eyes, there is also a narrow groove extending around the antennal cavities and margined posteriorly by a short elevated carina; vertex with a distinct transverse arcuate smooth elevation extending to the eyes; surface densely and coarsely punctate, the punctures confluent, irregular in shape and size, and rather sparsely clothed with long, fine, erect hairs, which do not conceal the surface; eyes large, more acutely rounded on top than at bottom, and nearly confluent on the occiput; epistoma narrow, elevated, broad triangularly emarginate at the middle, with the lobes broadly rounded; antennae rather long, and very pubescent, third joint as long as the following three joints united, the outer joints compact. Pronotum strongly transverse, two and one-half times as wide as long, widest along middle, slightly narrower in front than behind; sides obliquely expanded to apical third, then parallel to basal third, and finally strongly concavely attenuate to the posterior angles, which are rectangular; anterior margin arcuately emarginate, without a median lobe; base broadly rounded median lobe, which is broadly and feebly emarginate in front of scutellum; disk moderately convex, with a very feeble median depression, and on each side of which is a round deep depression in front of elytral lobe, and a deeper transverse one along the anterior margin, there are also two more or less obsolete irregular depressions at the sides; surface coarsely and densely punctate, the punctures irregularly placed, and becoming coarser and confluent at the sides; intervals nearly smooth. Scutellum very long and acuminate at apex, and the surface obsoletely granulose. Elytra wider than pronotum at base, but almost equal in width to it at the middle; sides broadly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are obtusely rounded; lateral margins strongly serrate to the humeral angles; humeri moderately prominent; base with a rather acutely rounded lobe; disk feebly convex, and each elytron with four costae, the first extending from apex along suture, and elevated to basal third, where it becomes obsolete, the second feebly elevated, beginning at the posterior fovea, extending forward to near the base, and interrupted by the median fovea, the third feebly elevated and extending from the median fovea to near the apex, and narrowly interrupted by the posterior fovea, and the fourth rather strongly elevated, extending along the lateral margin behind the posterior fovea, but not quite attaining the apex; surface coarsely and densely punctate, the punctures denser and more confluent in the foveae and toward the sides; intervals smooth. Abdomen beneath coarsely and sparsely punctate, with the

posterior margins not well defined, sparsely clothed with long recumbent hairs along sides, and the intervals obsoletely granulose; sides of segments with flat smooth spaces and the posterior angles produced into an acute tooth; first segment feebly concave at middle; last segment with the lateral margins entire, with a strongly elevated serrate submarginal ridge, and broadly, but not deeply arcuately emarginate at apex. Prosternum broadly and obsoletely emarginate in front, without a median lobe; surface transversely depressed along anterior margin, sparsely and rather coarsely punctate, transversely rugose anteriorly, and sparsely clothed with long cinereous hairs; prosternal process flat, strongly expanded behind the coxal cavities, and the apex with a long triangular tooth. Anterior and middle femora moderately robust, the former without the usual large tooth; posterior pair subcylindrical and not enlarged at middle. Anterior and middle tibiae feebly arcuate and subcylindrical; posterior pair straight.

Length, 15 mm.; width, 7.5 mm.

The locality given by Chevrolat (1867) in the original description is Cuba, from the central part of the island in the collections of Gundlach and Poey. Gundlach (1891) records it from Cuba without giving any additional notes.

The above description was made from two female specimens kindly loaned by the Academy Natural Sciences Philadelphia, and labeled Cuba (Poey Coll. No. 986). (One of these specimens has been donated to the U. S. National Museum). There is also a single example of this species labeled No. 839 in the Gundlach Museum in Habana, which has not been available for study.

The species is very closely allied to *tranquebarica* Gmelin and might be easily mistake for that species. It is, however, easily distinguished from that species by the anterior femora not having the usual large tooth on the outer margin, by being broader in proportion to its length, sides of pronotum parallel at middle, posterior foveae on the elytra more irregular and extending between the first and fourth costae, and the last ventral segment of the abdomen in the female broadly, but not deeply arcuately emarginate at the apex, while in *tranquebarica* the female has two semi-circular emarginations at the apex. The species seems to be rare in collections, as no specimens have been recorded except the ones mentioned by Chevrolat in the Gundlach and Poey Collections. It seems to be confined to Cuba, and probably has a different food plant from *tranquebarica*.

CHRYSOBOTHRIS ANTILLARUM, new species

Female.—Elongate, rather broad and moderately convex, subopaque; head green, with the median parts violaceous-black; pronotum aeneous, with obsolete violaceous-black areas, and anteriorly mar-

gined with green; scutellum and elytra violaceous-black, the latter with the sutural margins green, and each elytron with three deeply depressed green foveae, one at the basal lobe, the second on middle of disk just in front of middle, and the posterior one at apical third, situated closer to the lateral margin than the suture; beneath violaceous-black, with the median parts green.

Head feebly convex, with the front triangular, and the sides feebly arcuately rounded; occiput narrow and obsoletely longitudinally carinate; front with a broad concavity, which is deeper at the epistoma; vertex with an obtuse elevation, not extending to the sides, and behind which, is an obsolete arcuate carina forming an acute arc with the sides of front; surface coarsely and densely punctate, the punctures shallow, irregular and confluent on the front, becoming finer along eyes and on occiput, bottom of punctures finely granulose, and the intervals smooth, sparsely clothed with rather long inconspicuous hairs; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by one-half the distance between the antennal cavities; epistoma very deeply narrowly and acutely emarginate in front, the lobe on each side forming an arc from the bottom of the emargination, and becoming nearly transverse at the sides; antennae moderately long, third joint broad, strongly clavate, and about as long as the following three joints united. Pronotum very strongly transverse, slightly more than two times as wide as long, widest at apical third, narrower behind than in front; sides strongly but not acutely angulate at apical third, then feebly sinuate and strongly obliquely attenuate to the posterior angles, which are nearly rectangular; anterior margin arcuately emarginate, with a broadly rounded obsolete median lobe; base broadly angularly emarginate on each side at elytral lobes, the median lobe broadly rounded, and broadly truncate in front of scutellum; surface somewhat uneven and feebly convex, with a broad obsolete impression at middle, and a smaller oblong one on each side, there is also a broad transverse impression along anterior margin at middle, and the sides are abruptly declivous, the lateral margins sharp, straight, and not visible posteriorly from above, sparsely and deeply punctate, the punctures rather fine on the disk, but becoming coarser and more confluent toward the sides, the surface is also feebly transversely rugose on disk, more irregularly rugose at sides, and the intervals finely and densely granulose. Scutellum very small, triangular, with the sides equal in length and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly angularly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are produced into an acute tooth at the middle of each elytron;

lateral margins strongly serrate to the middle; humeri rather prominent; base strongly angularly lobed; surface densely and finely punctate, the punctures becoming coarser, confluent and somewhat rugose at the sides, the intervals finely and densely granulose; each elytron with a distinct longitudinal carina along suture, extending from the apex to middle, and a more obsolete one along the lateral margin, there is a broad shallow impression at the humerus, and three deep round green ones on the disk as mentioned above. Abdomen beneath sparsely and coarsely punctate, the punctures shallow posteriorly, irregularly placed, and from each one arises a rather long erect hair; intervals nearly smooth; first segment broadly, but feebly impressed at middle; last segment with the lateral margins entire, without a submarginal ridge, and the apex with two semi-circular emarginations, the median tooth nearly as long, but more obtuse than the lateral ones. Prosternum with a distinct broadly rounded median lobe in front, behind which, the surface is broadly depressed; surface very coarsely punctured posteriorly, finely, transversely rugose in front, and sparsely clothed with long inconspicuous hairs; prosternal process nearly flat, strongly expanded behind the coxal cavities, and with a large triangular tooth at apex. Femora robust; anterior pair with a large obtuse tooth on the outer edge near middle, which is strongly dentate on the exterior margin. Anterior and middle tibiae arcuate, the former flattened on the inner surface, and without any dilatations; posterior pair straight and subcylindrical.

Length, 12 mm.; width, 5 mm.

Type locality.—Bridgetown, Barbados.

Type.—Coll. Amer. Mus. Nat. Hist.

Described from a single female collected at the type locality by Dayton Stoner on May 11, 1918. It is closely allied to *C. cordicollis* described by Castelnau and Gory from South America. Since their description is so short and incomplete, and the specimen before me does not entirely agree with the description given by these authors, I am describing it as new.

CHRYSOBOTHRIS DENTIPES (Germar)

Buprestis dentipes GERMAR, Ins. Spec. Novae, vol. 1. 1824, pp. 38–39, No. 63.

Buprestis characteristicia HARRIS, New England Farmer, ser. 1, vol. 8, 1829, p. 2, no. 1.

Chrysobothris dentipes MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, No. 8, 1837, p. 76.

Chrysobothris plicata DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 80; 3 ed., 1836, p. 90. (No description.)

Chrysobothris planata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Chrysobothris*, pp. 56–57, pl. 10, fig. 77.

Chrysobothris posticalis CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837, *Chrysobothris*, p. 56, pl. 10, fig. 76.

Buprestis ruficornis STURM, Catal. Ins. Sammlung, 1826, p. 105.

Chrysobothris ruficornis STURM, Catal. Käfer Sammlung, 1843, p. 61.

Chrysobothris rotundicollis CASTELNAU and GORY, Mon. Bupr., vol. 2, 1837,

Chrysobothris, p. 51, pl. 9, fig. 69.

Male.—Form broadly elongate, strongly depressed, and subopaque; color dark aeneous with a cupreous tinge; elytra with numerous irregular smooth costae; antennae aeneous, with joints four to eleven in greater part testaceous; beneath cupreous, and more shining than above.

Head feebly convex, with the front flat and triangular, and the sides obliquely narrowed to the vertex, where they are feebly arcuately expanded; occiput rather wide, with a broad smooth longitudinal carina, which is grooved in the middle; front somewhat uneven, but without distinct impressions; vertex without transverse carina; surface coarsely, densely, and irregularly punctate, the punctures shallow and confluent, forming a network of irregular polygonal areas, the sides of which are smooth and in some places sharply elevated and rugose, rather densely clothed with long, very fine erect hairs, which do not conceal the surface; eyes not very large, narrow, feebly convex, bottom and top about equal in width, but more truncate at the bottom, and separated on the occiput by about the same distance that separates the antennal cavities; epistoma depressed, broadly triangularly emarginate in front, with the lobe on each side strongly angulate at the middle; antennae rather long, third joint only a little longer than the fourth, and the following joints very compact. Pronotum strongly transverse, nearly two times as wide as long, widest at apical third, slightly narrower behind than in front; sides broadly rounded to apical third, then feebly sinuate and obliquely attenuate to the posterior angles, which are rectangular; anterior margin arcuately emarginate, with an obsolete median lobe; base bisinuate, with a very broad median lobe, which is broadly truncate in front of scutellum; surface uneven, the disk moderately convex, with a broad median sulcus, wider in front and limited on either side by a broad elevated smooth space, between which and the margin are two large irregular depressions, one near the anterior margin and the other at base, the latter margined posteriorly with an acutely elevated carina, surface also densely and coarsely punctate, the punctures irregularly placed and becoming confluent in the depressions and at sides. Scutellum small, triangular, with the sides equal in length, and the surface obsolete granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to apical third, then arcuately attenuate to the tips, which are separately, narrowly rounded; lateral margins feebly serrate to the middle, the teeth very short and more closely placed toward the apex; humeri not very

prominent; base broadly rounded, without a distinct lobe; disk rather flat, with a deep basal depression, the first costa along suture distinct on apical half, terminating in front in a vague, smooth space, between this costa and lateral margin are three somewhat transverse, broad smooth spaces of irregular shape, the surface between these is densely, coarsely, and irregularly punctate. Abdomen beneath coarsely but not very closely punctate, the punctures with the posterior margins not well defined, and from the center of each arises a very short inconspicuous hair; intervals nearly smooth; first segment feebly depressed at middle; last segment longitudinally depressed along lateral margins, which are serrate, without a submarginal ridge, and with the apex broadly arcuately emarginate. Prosternum truncate in front and without a median lobe; surface coarsely and sparsely punctate, more densely and finely along the anterior margin, and sparsely clothed with long inconspicuous cinereous hairs; prosternal process nearly flat, strongly expanded behind the coxal cavities, and with a large acute triangular tooth at apex. Femora robust; anterior pair with a large obtuse tooth on the outer edge, closer to the apex than base, and serrate on the exterior margin. Anterior and middle tibiae rather strongly arcuate, flattened on the inner surface and feebly dilated near the apex; posterior pair feebly arcuate and subcylindrical.

Female.—Differs from the male in having the head a little more convex, more coarsely punctured, not as pubescent, and with more or less distinct smooth callosities; last abdominal segment with a very small acute emargination at apex; anterior and middle tibiae only feebly arcuate and the posterior pair straight.

Length, 10–18 mm.; width, 4–7 mm.

This species is easily distinguished from any other species of this genus found in the West Indies by the antennae having joints four to eleven in the greater part distinctly testaceous.

The species was described by Germar (1824) from North America, and later under a number of names as given above by various authors. The species is rather common and is found throughout the greater part of the United States, the larvae living in various species of pine. Castelnau and Gory (1837) described *rotundicollis* from Saint Domingo, and the following is a translation of their original description:

Dark aeneous, strongly punctured. Thorax rounded on the sides, with two elevated longitudinal lines, more obscure at the middle. Elytra with irregular, cupreous impressions, of which the two most prominent are situated a little posteriorly. Body and feet cupreous. Length, 6 lines; width, $2\frac{1}{4}$ lines.

A specimen received from the British Museum and labeled Haiti, Saunders 74–18, agrees with the figure and description of *rotundi-*

collis, although their description is short and does not include the essential characters used at present for separating the species of this genus. In comparing this specimen with specimens of *dentipes* Germar from the United States, I can not find any differences. These authors¹⁹ give a figure of a species which they have identified as *dentipes* Germar, but it is certainly not the species described by Germar from North America, and since Castelnau and Gory apparently did not know the true *dentipes*, I am inclined to place *rotundicollis* as a synonym of *dentipes* Germar. There is a unique specimen under the name *rotundicollis* in the British Museum, but the specimen has not been examined.

CHRYSOBOTHRIS BELLA, new species

Female.—Form rather broad and moderately convex, and shining; above bright bluish-green, and each elytron ornated with reddish-purpureous markings, all of which are obsoletely separated from the suture, and arranged as follows: One covering basal fourth, arcuately rounded posteriorly, and enclosing the green basal depression and humerus; a rather broad transverse fascia just behind the middle, the margins irregular and expanded both near the suture and lateral margin; and a rather narrow crescent-shaped fascia at apical third, feebly oblique, with the concavity toward the apex; beneath green; tarsi cyaneous.

Head flat, with the front triangular, and the sides obliquely narrowed to apex; occiput narrowly and longitudinally carinate; front broadly and irregularly impressed, the impression causing an obsolete transverse elevation near vertex, in front of which the impression is deeper, and extending longitudinally on each side to the antennal cavities; surface very coarsely and irregularly punctate, and the front sparsely clothed with short inconspicuous hairs; intervals finely and densely granulose; eyes large, strongly convex, more arcuately rounded at bottom than on top, and separated on the occiput by about one-half the distance between the antennal cavities; epistoma broadly angularly emarginate in front, and the lobes broadly rounded; antennae short, third joint as long as the following four joints united. Pronotum strongly transverse, nearly two times as wide as long, widest near apex, slightly narrower behind than in front; sides rather strongly angulated near apex, slightly sinuate at middle, then feebly arcuately rounded to posterior angles, which are rather acute and closely applied to the elytra; anterior margin feebly arcuately emarginate, with an obsolete median lobe; base very strongly angularly emarginate on each side at the elytral lobes, the median lobe broadly rounded, and truncate in front of

¹⁹ Mon. Bupr., vol. 2, 1837, *Chrysobothris*, p. 52, pl. 9, fig. 70.

scutellum; surface evenly convex, without impressions, but transversely rugose, and coarsely, sparsely punctate, the punctures irregularly placed, and becoming denser and more oblong toward the sides; intervals finely and densely granulose. Scutellum small, triangular, with the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to middle, then strongly, arcuately attenuate to the tips, which are produced into an acute tooth at the middle of each elytron; lateral margins strongly serrate to middle, with the teeth rather widely separated: humeri moderately prominent; base strongly angularly lobed; surface without costae, but each elytron with a round deep impression behind the basal lobe, as shallow one near humerus, and with a very feeble impression on the median and postmedian green fasciae, sparsely and regularly punctate, the punctures much coarser and denser on the green fasciae, and becoming nearly obsolete at the apex; intervals finely and densely granulose. Abdomen beneath coarsely and very irregularly punctate; first and second segments feebly depressed at middle; last segment with the lateral margins entire, without a serrate submarginal ridge, and the apex with two deep semicircular emarginations, with the median tooth as long as the lateral ones. Prosternum with a narrow declivous lobe at middle; surface sparsely, coarsely punctate, and somewhat rugose, and sparsely clothed with recumbent cinereous hairs; prosternal process flat, strongly expanded behind the coxal cavities, and with a triangular tooth at apex; anterior coxal cavities separated by about their own diameter. Femora robust; anterior pair armed with a large rounded tooth on outer margin near middle, the tooth with a double row of fine teeth on its exterior margin. Anterior tibiae flattened, feebly arcuate, and without any dilatations; middle and posterior pairs subcylindrical and straight.

Length, 7–9.5 mm.; width, 3.2–4 mm.

Type locality.—Mustique Island, Grenadines, W. I. (H. H. Smith).

Other localities.—Woburn (south end), Grenada, W. I. (H. H. Smith).

Type.—British Museum.

Paratype.—Cat. No. 26808, U.S.N.M.

Described from two females received from the British Museum. The type is from Mustique, and the paratype, which only differs from the type in being smaller, is from Woburn, both specimens having been collected by H. H. Smith. The species is very closely allied to *pulchra* Castelnau and Gory described from South America, without any definite locality. Not having any specimens of *pulchra* for comparison, and on account of the authors' descriptions being

so short and incomplete, I am obliged to describe it as a new species. In their description of *pulchra* they state that the pronotum has a small longitudinal line at the middle, which is entirely absent in the West Indian specimens. In comparing the specimen with their figure of *pulchra*, that species seems to be larger and more elongate, the pronotum not angulate near the anterior angles, and with a longitudinal line at middle, the reddish fasciae on elytra are broader in comparison to the green areas, and the tips of the elytra are conjointly acute, while in *bella* each elytron is produced into an acute tooth at middle.

CHRYSOBOTHRIS QUADRIMACULATA (Fabricius)

Buprestis quadrimaculata FABRICIUS, Gen. Ins. Mant., 1776, pp. 236-237; Spec. Ins., vol. 1, 1781, p. 280; Mant. Ins., vol. 1, 1787, p. 183.—OLIVIER, Entomol., vol. 2, gen. 32, 1790, p. 76, pl. 10, fig. 110; Ency. Method., vol. 5, 1790, p. 238.—FABRICIUS, Syst. Eleuth., vol. 2, 1801, p. 208.

Male.—Form rather elongate and moderately convex, subopaque; head aeneous, with a cupreous reflection; pronotum violaceous, with a transverse green fascia at the anterior margin, the fascia narrowly margined anteriorly with a reddish-cupreous color, and a rather wide transverse reddish-cupreous fascia (strongly expanded at the sides) at basal third; scutellum and elytra violaceous; each elytron with base, suture, lateral margin, and a narrow transverse postmedian fascia green, all the green areas narrowly margined with a reddish-cupreous color; there is also a transverse oblong reddish-cupreous spot in the middle of the anterior violaceous area, and a smaller, somewhat triangular spot of the same color in the middle of the posterior violaceous area; beneath aeneous, with a strong bluish-green tinge, the sides of the posterior coxae and prosternum reddish-cupreous and more shining than above; tarsi cyaneous.

Head flat, with the front triangular, and the sides feebly arcuately rounded; occiput narrowly obsoletely longitudinally carinate; front not impressed; vertex with an arcuate transverse elevation forming an arc with the sides of the front; surface sparsely, very coarsely, but not deeply punctate, the punctures irregularly placed, becoming confluent in some parts, and from the center of each puncture arises a moderately long recumbent cinereous hair; intervals finely densely granulose; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by one-half the distance between the antennal cavities, epistoma broadly arcuately emarginate in front, the lobes broadly rounded; antennae short, third joint as long as the following four joints united. Pronotum strongly transverse, one and one-half times as wide as long, widest near apex, front and base about equal in width; sides strongly, abruptly and

arcuately expanded near apical angles, then feebly sinuate, and nearly parallel to the posterior angles, which are rather acute and closely applied to the elytra; anterior margin feebly arcuately emarginate, with an obsolete median lobe; base strongly angularly emarginate on each side at the elytral lobes, the median lobe broadly rounded and truncate in front of scutellum; surface evenly convex, without impressions, sparsely and rather deeply punctate, the punctures irregularly placed and becoming coarser toward the sides; intervals densely, obsoletely granulose. Scutellum very small, triangular, with the sides equal in length and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to behind the middle, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly serrate to near the middle, the teeth rather widely separated; humeri rather prominent; base not very strongly lobed; surface without costae, but each elytron with a rather shallow impression at the basal lobe, and a shallow transverse one along base extending to the humerus, and with a broad obsolete impression on the anterior reddish-cupreous area, sparsely, finely and irregularly punctate, the punctures irregular in size, and the intervals finely and densely granulose. Abdomen beneath sparsely and coarsely punctate, the punctures very shallow, irregularly placed, and from each puncture arises a recumbent cinereous hair; intervals obsoletely granulose and more shining than above; first segment only obsoletely flattened; last segment with the lateral margins entire, without a serrate submarginal ridge, and with the apex broadly arcuately emarginate. Prosternum with a narrow, declivous lobe in front, and the surface more coarsely and deeply punctate than the abdomen; prosternal process flat, strongly expanded behind the coxal cavities, and with a triangular tooth at apex; anterior coxal cavities separated by about their own diameter. Femora robust; anterior pair with a sharp tooth on the outer edge near middle, the tooth not serrate on the exterior margin. Anterior tibiae slightly arcuate, feebly flattened and without any dilatations; posterior and middle pairs nearly straight and subcylindrical.

Female.—Differs from the male in having the head more cupreous, and the apex of the last abdominal segment with two semicircular emarginations, and the median tooth more obtuse and not as long as the lateral ones.

Length, 8.5 mm.; width, 3.9 mm.

This beautiful species can be easily separated from all the other West Indian species of this genus by the transverse green, violaceous and reddish-cupreous fasciae on pronotum.

The original locality given by Fabricius (1776) is "India" and from the short description it would be impossible to recognize the

species, but Olivier (1790) gives a very good description and figure of the species described by Fabricius. Fabricius (1801) under *quadrimaculata* cites Olivier's redescription of this species, so there is scarcely any doubt as to Olivier's identification of the species. Specimens which agree with the description and figure given by Olivier have been examined from the following localities. Coll. British Mus.: One female, labeled West Indies, without any definite locality. Coll. Amer. Mus. Nat. Hist.: Two males, labeled Jamaica. (One of these specimens donated to the U. S. Nat. Mus. Coll.)

CHYSOBOTHRIS LEPIDA Castelnau and Gory

Chrysobothris lepida CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836, p. 16. pl. 3, fig. 23.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French Edition), p. 64; (Spanish Edition) vol. 7, 1857, p. 28.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 585 (separates p. 161).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 168, No. 505.

Male.—Form broadly elongate, moderately convex and subopaque; head cupreous, with the reliefs purplish-green; pronotum, scutellum, and elytra purpureous, with a distinct greenish tinge; each elytron ornated with bright green marks as follows: A transverse fascia at base, a slightly oblique one just in front of middle, and a more transverse one at apical third, the fasciae wider and more rounded internally, not reaching to the suture, and the posterior one sometimes divided into two round spots; beneath greenish-black, with a strong purpureous tinge, and more shining than above; antennae cupreous; tarsi cyaneous.

Head feebly convex, with the front triangular and the sides feebly arcuately rounded; occiput narrow and longitudinally carinate: front not impressed; vertex with an obsolete arcuate transverse elevation, forming an arc with the sides of the front; surface densely and coarsely punctate, the punctures somewhat confluent on the front and from the center of each puncture arises an inconspicuous cinereous hair; intervals obsoletely granulose; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about the same distance that separates the antennal cavities; epistoma deeply, narrowly, and acutely emarginate, the lobe on each side forming an arc from the bottom of the emargination; antennae short, third joint about as long as the following three joints united. Pronotum strongly transverse, one and four-fifths times as wide as long, widest near apex, slightly narrower at base than in front; sides strongly, abruptly, and acutely expanded near apical angles, then feebly sinuate and slightly narrowed to the posterior angles, which are nearly rectangular and closely applied to the elytra; anterior margin broadly arcuately emarginate with a

broadly rounded median lobe; base broadly arcuately emarginate on each side at the elytral lobes, the median lobe broadly rounded, and truncate in front of scutellum; surface evenly convex, without impressions, rather densely, deeply, and coarsely punctate, the punctures becoming larger and more confluent at the sides; intervals densely and obsoletely granulose. Scutellum very small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to near apical third, where they are slightly wider, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly, coarsely serrate to near the middle; humeri not prominent; base broadly arcuately lobed: surface without costae, but each elytron with a round, deep impression at the basal lobe, and a broad, shallow one on the premedian green fascia, densely and finely punctate, the punctures coarse and more confluent on the green areas and at sides and apex: intervals finely and densely granulose. Abdomen beneath sparsely and coarsely punctate, the punctures shallow and irregularly placed, and from each puncture arises a short semierect cinereous hair; intervals nearly smooth and more shining than above; first segment not impressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex broadly arcuately emarginate. Prosternum with a narrow, broadly rounded median lobe, which is feebly declivous in front, the surface more coarsely and deeply punctate than the abdomen; prosternal process flat, angularly emarginate between the coxal cavities, then strongly expanded on each side, with a rather acute tooth at apex; anterior coxal cavities separated by a little more than their own diameter. Femora robust; anterior pair with a large, acute tooth on the outer edge near middle, the tooth not serrate on the exterior margin. Anterior and middle tibiae slightly arcuate, the former flattened and with an obsolete dilatation at the apex; posterior pair subcylindrical and straight.

Female.—Differs from the male in having the head olivaceous-green, occiput more strongly carinate, eyes more widely separated, first and second abdominal segments feebly flattened, last ventral segment truncate at apex, with a sharp tooth at each side, and an irregular submarginal ridge, and the anterior tibiae without any dilatations.

Length, 6 mm.; width, 3 mm.

Described from Cuba by Castelnau and Gory. Recorded from the same island by Jacquelin Duval. Chevrolat (1867) records it from the eastern and central part of Cuba, in the collections of Gundlach, Poey, and the author. Gundlach (1891) records having collected it in all parts of the island of Cuba and in Porto Rico. The specimens

which he records from Porto Rico are probably *Chrysobothris wolcotti* Fisher, as no specimens of *levida* have been seen from that island.

Specimens have been examined from the following localities. Coll. U. S. Nat. Mus.: Cayamas, Cuba, January to June (E. A. Schwarz); Long Island, Bahamas, January 4, 1879 (E. A. Schwarz). Coll. Acad. Nat. Sci. Phila.: Cuba (Poey Coll. No. 117). Coll. Amer. Mus. Nat. Hist.: Banon San Vicente (near Viñales), Cuba, elevation about 1,000 feet in a valley in the Sierra de los Organos, September 16, 1913, the vegetation consisting of palms, guava, and many other shrubs and trees (Chas. W. Leng). Coll. S. C. Bruner: Santiago de las Vegas, Cuba, January 18, 1922 (S. C. Bruner). The species is also represented in the Gundlach Museum in Habana by two examples labeled No. 505, and by a single example in the British Museum, neither of which have been examined.

CHRYSOBOTHRIS MEGACEPHALA Castelnau and Gory

Chrysobothris megacephala CASTELNAU and GORY, Mon. Bupr., vol. 2, 1836,
p. 13, pl. 3, fig. 18.

Male.—Form rather elongate, moderately convex and subopaque; color uniformly dark aeneous; each elytron with four round, deep impressions, which are slightly more aureous or cupreous at the bottom; tarsi aeneo-piceous.

Head feebly convex, with the front triangular and the sides obliquely narrowed to the vertex; occiput moderately wide and obsoletely longitudinally carinate; front not impressed; vertex with a transverse elevation; surface densely and coarsely punctate, the punctures on the front rather shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, the bottom of which are granulose, rather densely clothed with long semi-erect silvery-white hairs, which do not obscure the surface; eyes large, strongly convex, more acutely rounded at bottom than on top and separated on the occiput by slightly less than the distance between the antennal cavities; epistoma narrowly and deeply emarginate in front, the lobe on each side forming an arc from the bottom of the emargination; antennae rather long, third joint about as long as the following four joints united. Pronotum strongly transverse, nearly two times as wide as long, widest at apical third, apex and base about equal in width; sides very strongly angulated at apical third, then slightly arcuately rounded and feebly narrowed to posterior angles, which are rather acute; anterior margin arcuately emarginate, with an obsolete median lobe; base rather strongly arcuately emarginate on each side at the elytral lobe, with the median lobe broadly rounded, and truncate in front of scutellum; surface

evenly convex, without impressions, rather densely and deeply punctate, the punctures well separated on the disk, but becoming coarser and somewhat confluent at the sides; intervals obsoletely granulose. Scutellum small, triangular, the sides equal in length and the surface obsoletely granulose. Elytra distinctly wider than the pronotum at base; sides broadly rounded at humeral angles, slightly sinuate and nearly parallel to behind middle, where they are slightly wider, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly serrate to the middle, the teeth short and widely separated; humeri not very prominent; base arcuately lobed; surface without costae, but each elytron with a round deep impression at basal lobe, a broad obsolete one at humerus, a round deep one on middle of disk just in front of the middle, and two round ones placed transversely at apical third, the interior one not as deeply impressed, densely and rather deeply punctate, the punctures rather fine on the disk but becoming coarser and more confluent toward the sides; intervals densely and finely granulose. Abdomen beneath coarsely and rather densely punctate, the punctures very shallow, irregularly placed, and becoming finer toward the sides, sparsely clothed with long recumbent cinereous hairs; intervals obsoletely granulose; first segment feebly depressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex broadly arcuately emarginate, with a very small acute notch on each side at the apical angles. Prosternum with a distinct median lobe in front, behind which the surface is abruptly and broadly depressed and sparsely and very irregularly punctate; prosternal process flat, strongly expanded behind the coxal cavities, and with a large triangular tooth at apex. Femora robust; anterior pair with a large acute tooth on the outer edge at middle, which is not serrate on the exterior margin. Anterior tibiae arcuate, flattened, and with a distinct broad dilatation at apex; middle pair strongly sinuate near apex; and the posterior pair straight and subcylindrical.

Female.—Differs from the male in having the front of head more convex and the sides feebly arcuately rounded, apex of abdomen with two semi-circular emarginations (the median tooth not as long as the lateral ones), anterior tibiae without dilatations, and the middle pair straight.

Length, 9 mm.; width, 4 mm.

This species is closely allied to *chlorosticta* Thomson, and *parvofoveata* Fisher, but can be distinguished from either of these two species by the elytral foveae being cupreous or concolorous with the elytra, and the four posterior ones transversely placed, while in the

first two species the foveae are green, and the posterior ones obliquely placed.

The locality given by Castelnau and Gory in their original description of this species is Port-au-Prince, Haiti, and the above description was made from specimens from the type locality. Specimens have been examined from the following localities. Coll. U. S. Nat. Mus.: Port-au-Prince, Haiti; Higueral, Santo Domingo, February, 1916 (E. G. Smyth); Santa Rita, Porto Rico, July, 1913 (E. G. Smyth). Coll. H. F. Wickham: Port-au-Prince, Haiti (R. J. Crew). Coll. British Mus.: St. Domingo. Coll. Amer. Mus. Nat. Hist.: Ensenada, Porto Rico, May, 1915, Breeds in *Agati grandiflora* (E. G. Smyth). Coll. Porto Rico Exp. Sta.: Higueral, Santo Domingo, April 13, 1913 (W. V. Tower). Coll. Mus. Comp. Zool.: St. Marc, Haiti (W. M. Mann).

Kerremans²⁰ places *octosignata* described by Waterhouse²¹ as a synonym of this species, but I have been unable to find that Waterhouse has used that name for a species of *Chrysobothris*.

CHRYSOBOTHRIS CHLOROSTICTA Thomson

Chrysobothris chlorosticta (Laferté MSS.) THOMSON, Typi. Buprestidarum, 1878, p. 78.

Male.—Form rather elongate, moderately convex, and subopaque; above aeneous, with a strong purpureous tinge; each elytron ornated with bluish-green markings as follows: A large round spot at basal lobe, an oblong spot on humerus, and extended to the base, a large round ante-median spot, and two small round spots at apical third, of which the exterior one is placed obliquely in advance of the anterior one; dorsal segments of abdomen bright green at the sides; beneath aeneous, with purpureous and cupreous reflections; tarsi cyaneous.

Head feebly convex, with the front triangular and the sides obliquely narrowed to the vertex; occiput rather wide and longitudinally carinate; front not impressed; vertex with a transverse elevation; surface densely and coarsely punctate, the punctures on the front shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, the bottom of which are granulose, sparsely clothed with long, recumbent cinereous hairs; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about the same distance as between the antennal cavities; epistoma with a narrow acutely rounded emargination at middle, the lobe on each side of the emargination obliquely rounded; antennae rather long, third joint about as long as the following four

²⁰ Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, p. 191.

²¹ Biol. Centr.-Amer., Coleopt., vol. 3, pt. 1, 1887, p. 38.

joints united. Pronotum strongly transverse, nearly two times as wide as long, widest near apical third, slightly narrower behind than in front; sides very strongly angulated near apical third, then feebly sinuate and obliquely narrowed to the posterior angles, which are rather acute; anterior margin arcuately emarginate, with a broadly rounded obsolete median lobe; base arcuately emarginate on each side at the elytral lobe, the median lobe broadly rounded, and truncate in front of scutellum; surface evenly convex, without impressions, rather densely and deeply punctate, the punctures well separated on the disk, but becoming coarser and more confluent toward the sides; intervals obsoletely granulose. Scutellum small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, slightly sinuate and parallel to behind middle, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly serrate to the middle, the teeth large, widely and irregularly placed; humeri not very prominent; base broadly arcuately lobed; surface without costae, but with all the green spots deeply impressed, except those on the humeri, rather densely, deeply, and regularly punctate, the punctures becoming somewhat confluent and rugose toward the sides; intervals densely and finely granulose. Abdomen beneath coarsely, sparsely, and irregularly punctate, and very sparsely clothed with long, recumbent, cinereous hairs; intervals obsoletely granulose; first segment feebly impressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex broadly but not deeply arcuately emarginate. Prosternum with a distinct median lobe in front, behind which the surface is abruptly and broadly depressed, with only a few coarse punctures along the sides, and sparsely clothed with long cinereous hairs; prosternal process flat, nearly smooth, strongly expanded behind the coxal cavities, and with a very large triangular tooth at apex. Femora robust; anterior femora with a large acute tooth on the outer edge near the middle, the exterior margin not serrate. Anterior tibiae feebly arcuate, flattened on the inner margin, and with a distinct dilatation near the apex; middle pair strongly sinuate near apex; posterior pair straight, subcylindrical, and with a series of stiff hairs on the outer margin near apex.

Female.—Differs from the male in having the front of head slightly more convex, sides more arcuately rounded, elytral spots of a brighter green color, and the posterior ones larger, sides of pronotum more concave posteriorly, apex of abdomen with two semi-circular emarginations (the median tooth not as long as the lateral ones), anterior tibiae without dilatations, and the middle and posterior ones straight.

Length, 10.5 mm.; width, 4.25 mm.

This species is closely allied to *megacephala* Castelnau and Gory, and *parvofoveata* Fisher. From the former it is distinguished by the elytral markings being green and the posterior foveae placed obliquely on the elytron, and from the latter by having the humeral angles green, elytral spots larger, and the epistoma more acutely emarginate at the middle.

The above description of the male was made from a specimen labeled "St. Domingo," in the collection of the British Museum, and that of the female, in the collection of the American Museum of Natural History, collected by F. W. Watson at Villa Rivas, 20 miles west of Sanchez, Dominican Republic, on June 19, 1915. The collecting was done along the north bank of the Ura River to a point one mile east of the town. The locality given by Thomson in the original description is simply "St. Domingo."

CHRYSOBOTHRIS PARVOFOVEATA, new species

Female.—Form rather elongate, moderately convex, and subopaque; color uniformly dark aeneous; each elytron with four small, round spots, which are deeply impressed, bright green at the bottom, and arranged as follows: One at the basal lobe, a similar one just in front of the middle, and two others near the apical third, of which the exterior one is considerably in advance of the interior one; tarsi cyaneous.

Head rather strongly convex, with the front triangular, and the sides feebly arcuately rounded; occiput wide, with a broad smooth longitudinal carina; front not impressed; vertex with an obsolete transverse elevation; surface densely and coarsely punctate, the punctures somewhat confluent near the antennal cavities, sparsely clothed with long, inconspicuous cinereous hairs; intervals obsoletely granulose; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about the same distance as between the antennal cavities; epistoma broadly angularly emarginate in front, the lobe on each side broadly rounded; antennae rather short, third joint about as long as the following three joints united. Pronotum strongly transverse, nearly two times as wide as long, widest at apical third, slightly narrower behind than in front; sides very strongly angulated at apical third, then feebly sinuate, and obliquely attenuate to the posterior angles, which are rather acute; anterior margin arcuately emarginate, with a broadly rounded median lobe; base arcuately emarginate on each side at the elytral lobes, the median lobe broadly rounded, and narrowly truncate in front of scutellum; surface evenly convex, without impressions, rather densely and coarsely punctate, the punctures somewhat confluent toward the sides; intervals finely and densely granulose.

Scutellum very small, triangular, with the sides equal in length. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to behind the middle, then arcuately attenuate to the tips, which are conjointly broadly rounded; lateral margins strongly serrate to the middle, the teeth large and rather evenly spaced; humeri not prominent; base broadly arcuately lobed; surface with very indistinct longitudinal costae at apex, with eight round deep depressions as noted above, densely and deeply punctate, the punctures becoming denser and confluent toward the sides; intervals finely and densely granulose. Abdomen beneath sparsely, coarsely, and irregularly punctate, and very sparsely clothed with long inconspicuous cinereous hairs; intervals obsoletely granulose; first segment broadly depressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex with two semicircular emarginations, the median tooth only about one-half as long as the lateral ones. Prosternum with a distinct median lobe in front, behind which the surface is abruptly and broadly depressed, and with only a few large, irregularly placed punctures, and very sparsely clothed with long cinereous hairs; intervals smooth; prosternal process flat, strongly expanded behind the coxal cavities, and with a very large triangular tooth at apex. Femora robust; anterior pair with a large acute tooth on outer edge near middle, the exterior margin of which is not serrate. Anterior tibiae arcuate, flattened on the inner surface, and without any dilatations, the middle and posterior pairs straight and subcylindrical.

Length, 9 mm.; width, 3.75 mm.

Type locality.—Port-au-Prince, Haiti.

Type.—Cat. No. 26809, U.S.N.M.

Described from a single female collected at the type locality by R. J. Crew and received through the kindness of H. F. Wickham. I have also examined fragments of this species collected by E. G. Smyth at Higueral, Santa Domingo, during February, 1916.

The species is closely allied to *chlorosticta* Thomson, and *megacephala* Castelnau and Gory. From the former it can be separated by the absence of the green markings on humeral angles of elytra, elytral spots smaller, and the epistoma broadly angularly emarginate. From *megacephala* it can be distinguished by the elytral foveae being green, and the posterior ones placed obliquely on each elytron. It is also allied to *astuta* described by Waterhouse from Mexico, but the pronotum is more strongly angulated anteriorly than in that species, and the elytral foveae are green.

CHRYSOBOTHRIS THOMAE Kerremans

Chrysobothris thomae KERREMAN, Ann. Soc. Ent. Belg., vol. 43, 1899, p. 337.

Female.—Form, small, short, and feebly convex, subopaque; head, pronotum and scutellum dark aeneous, the reliefs on pronotum somewhat purpureous; elytra violaceous-black, basal region irregularly and obsoletely variegated aeneous, viridis and cupreous, the base, suture and lateral margins narrowly margined with green, the green margin becoming broader on the suture posteriorly and narrowly margined with a bright cupreous-red color along base and anterior part of suture, a broad irregular green premedian fascia extending from the lateral margin to middle of disk, but not reaching the suture, a broad post-median reddish-cupreous fascia extending between the green lateral and sutural margins, and a narrow preapical green fascia, narrowly margined posteriorly with a bright reddish-cupreous color; beneath violaceous-black, slightly aeneous in front, and more shining than above.

Head flat, with the front triangular and the sides broadly arcuately rounded; occiput very narrow, and longitudinally carinate; front and vertex without any impressions or carinae; surface very coarsely and densely punctate, the punctures shallow and confluent, with the bottoms finely and densely granulose, rather sparsely clothed with moderately long, recumbent cinereous hairs; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about one-half the distance between the antennal cavities; epistoma broadly angularly emarginate in front, with the lobes broadly rounded; antennae short, third joint a little longer than the following two joints united, cupreous, and sparsely pubescent. Pronotum strongly transverse, one and two-fifths times as wide as long, widest near apical fourth, slightly narrower behind than in front; sides rounded behind apical angles, then feebly, arcuately attenuate to the posterior angles, which are obtusely rounded; anterior margin obsoletely arcuately emarginate, with a feebly broadly rounded median lobe; base strongly bisinuate, with the median lobe broadly rounded, and truncate in front of scutellum; surface evenly convex, without any impressions, rather strongly transversely rugose, and rather coarsely and sparsely punctate, the punctures deep and well separated; intervals finely and densely granulose. Scutellum small, triangular, with the sides equal in length, and surface finely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, and feebly expanded to just behind the middle, where they are the widest, then strongly arcuately attenuate to the tips, which are separately narrowly rounded; lateral margins strongly serrate to near the middle; humeri not very prominent; base angularly lobed; surface

without costae, but each elytron with a round deep impression behind the basal lobe, and a shallow transverse impression along base, connected to a broader impression at humerus, the pre-median green fascia is also feebly impressed, rather densely and coarsely punctate, the punctures somewhat irregular but well separated, the intervals densely and finely granulose. Abdomen beneath coarsely and sparsely punctate; last segment with the lateral margins entire, with a serrate submarginal ridge, and truncate at apex. Prosternum with a narrow, declivous lobe in front; surface densely coarsely punctate, and sparsely clothed with recumbent cinereous hairs; prosternal process flat, strongly constricted between the coxal cavities, and long and acute at apex; anterior coxal cavities separated by about their own diameter. Femora robust; anterior pair armed with an acute tooth on the outer edge near middle, and with a series of small sharp teeth between the large tooth and apex. Anterior tibiae slightly arcuate near base, with a distinct dilatation on inner surface near the middle; middle and posterior pairs straight.

Length, 6.5 mm.; width, 3.25 mm.

This beautiful little species was described by Kerremans from St. Thomas, Antilles, and the above description is made from a specimen kindly loaned by the British Museum and labeled "S. Thomas (Meyer Dür); thomae Kerr. Type."

CHRYSOBOTHRIS WOLCOTTI, new species

Chrysobothris lepida GUNDLACH (not Castelnau and Gory), An. Soc. Espan. Hist. Nat., ser. 2, vol. 22, 1894, p. 623.

Male.—Form broadly elongate, moderately convex, and subopaque; head bright green; pronotum purplish or feebly cupreous, with the anterior margin narrowly margined with green, and with two obsolete aureous spots on the disk, one on each side of the median line and slightly in front of the middle; scutellum green; elytra purpureous, and each elytron ornated with the following bright green markings: A narrow transverse fascia at base, narrowly connected at the suture and along lateral margin to a narrow transverse fascia at basal third; a similar fascia at apical third extending from the lateral margin to near the suture, where it is bent backward, but not reaching the suture; and an oblong spot at the apex; beneath greenish-black, becoming purplish toward the sides, with the prosternum and exterior surface of the anterior femora and tibiae bright green, and the surface glabrous.

Head feebly convex, with the front triangular, and the side feebly arcuately rounded; occiput very narrow, longitudinally carinate and densely punctate; vertex and front nearly flat, without any longitudinal carina or sulcus, but with an obsolete transverse carina between the vertex and occiput; surface densely and coarsely punc-

tate, the punctures rather shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, bottom of the punctures granulose, and from the center of which arises an inconspicuous white hair; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about one-third the distance between the antennal cavities; epistoma large, broadly and very deeply triangularly emarginate at middle, the anterior margin strongly angulated on each side of the emargination; antennae greenish at base, becoming aeneous toward the tip, third joint about equal in length to the following three joints united. Pronotum strongly transverse and moderately convex, one and one-half times as wide as long, widest near the apical angles, then feebly obliquely narrowed to the posterior angles, which are not very acute; anterior margin arcuately emarginate, with a broadly rounded, obsoletely median lobe; base deeply emarginate at middle of each elytron, with a broadly rounded median lobe, which is feebly truncate in front of scutellum; surface evenly convex, without impressions, coarsely transversely rugose, and finely, rather sparsely, punctate, the punctures elongate and widely separated, the intervals very finely granulose. Scutellum triangular, the sides equal in length and the surface granulose. Elytra distinctly wider than pronotum at base, feebly angulated at humeral angles, then feebly sinuate and nearly parallel to near the middle, where it is the widest, and then arcuately attenuate to the tips, which are separately and rather broadly rounded; lateral margins very strongly serrate to near the middle; base moderately lobed; surface without costae, but with a deep transverse impression along the base, rather coarsely and densely punctate, the punctures elongate and rather widely separated; intervals finely and densely granulose. Abdomen beneath coarsely and sparsely punctate; last segment with the lateral margins entire, with a serrate submarginal ridge, and truncate at apex; with a small deep emargination at the lateral sides, forming an acute tooth at the outer edge. Prosternum broadly lobed in front, surface more coarsely and densely punctate than abdomen. Femora robust; anterior pair with a strong acute tooth on their outer edge near the middle, serrate on its exterior margin. Anterior tibiae slightly arcuate, with a distinct dilatation near the middle; middle and posterior pairs straight.

Female.—Differs from the males in having the front of head purplish, with the bottom of the punctures and margins along eyes slightly bronzy, and the punctures on front more widely separated, causing the intervals to be wider and obsoletely granulose, antennae aeneous with a strong purplish tinge; elytra more strongly angulated and sinuate near the humeral angles; beneath uniformly greenish-black

becoming strongly purplish toward the sides, and with the last abdominal segment more serrate at apex and the two lateral teeth projecting farther beyond the median part than in the male.

Length, 6–7 mm.; width, 2.5–3 mm.

Type locality.—Mayaguez, Porto Rico.

Other localities.—Rio Piedras and Anasco, Porto Rico.

Type and allotype.—Cat. No. 26810, U.S.N.M.

Paratypes.—British Museum and Collection Porto Rico Experiment Station.

Described from four specimens, two males and two females. The type is from Mayaguez, Porto Rico, without any additional data. The allotype was received from G. N. Wolcott of the Porto Rico Experiment Station, and was collected at Rio Piedras, Porto Rico, July 23, 1916, by E. G. Smyth, on a living twig of jobo (*Spondia lutea*). There is also a male paratype in the British Museum Collection from Anasco, Porto Rico, collected September, 1913, by E. G. Smyth, and a female paratype in the Porto Rico Experiment Station collection from Rio Piedras, Porto Rico, collected November 25, 1912, by G. Nevarrete.

This species was recorded by Gundlach (1894) from Porto Rico as *lepidia* Castelnau and Gory, but it is entirely different from that species. It is allied to *Chrysobothris lepida* Castelnau and Gory from Cuba, and also to *C. chrysoela* Illiger from the United States. From both these species it differs by having the epistoma triangularly emarginate, eyes more widely separated on occiput, pronotum more strongly transversely rugose, and the sides less strongly narrowed posteriorly, the last abdominal segment truncate, the transverse green fascia on basal third of elytron connected along the suture and lateral margin to the basal fascia, and the green fascia at apical third slightly turned backward near the suture, while in *lepidia* and *chrysoela* the green markings usually consist only of spots and are never connected along suture or lateral margin.

CHRYSOBOTHRIS HISPANIOLAE, new species

Female.—Form small, short, rather robust and feebly convex, and subopaque; head aenous in front, becoming cupreous on the occiput; pronotum reddish-cupreous; elytra brownish-aeneous, and each elytron ornated with bright green markings as follows: A transverse spot along base enclosing a round deep basal depression, a round deeply depressed spot on middle of disk, situated just in front of middle, and an oblong feebly impressed spot at apical third, situated closer to the lateral margin than the suture, the median and posterior green spots are narrowly margined with violaceous; beneath pieceous, with a strong aenous tinge; tarsi cyaneous.

Head feebly convex, with the front triangular, and the sides feebly arcuately rounded; occiput narrow, and longitudinally carinate; front not impressed; vertex with a very feeble arcuate elevation; surface sparsely and finely punctate, the punctures deep, widely separated, and regular in size, sparsely clothed with rather short inconspicuous hairs; intervals densely and rather coarsely granulose; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about one-half the distance between the antennal cavities; epistoma broadly and deeply triangularly emarginate in front, with the lobe on each side strongly angulated at the middle; antennae short, the third joint not as long as the following two joints united. Pronotum strongly transverse, one and one-half times as wide as long, widest at apical third, slightly narrower behind than in front; sides broadly rounded anteriorly, then arcuately attenuate to the posterior angles, which are rather obtuse; anterior margin feebly arcuately emarginate; base rather strongly bisinuate, with the median lobe broadly rounded, and feebly truncate in front of scutellum; surface evenly convex, without impressions, but sparsely and finely punctate, the punctures deep, elongate, and well separated on the disk, becoming coarser and transversely rugose at the sides; intervals finely and densely granulose. Scutellum small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to behind middle, where they are slightly wider, then arcuately attenuate to the tips, which are separately narrowly rounded; lateral margins coarsely serrate to the middle, the teeth very short and widely separated; humeri prominent; base feebly angularly lobed; surface with an obsolete costa along the lateral margin, extending from behind the humerus to near the apex, each elytron with a deep round impression at basal lobe, a feebly impressed one at humerus, an elongate one along margin behind the humerus, a round deeply impressed green spot on disk in front of middle, and a feebly impressed green spot at apical third, densely and coarsely punctate, the punctures irregular and becoming somewhat confluent at the sides; intervals densely and coarsely granulose. Abdomen beneath coarsely, deeply, and irregularly punctate, intervals obsoletely granulose, and more shining than above; first segment not impressed at middle; last segment with the lateral margins entire, with a submarginal ridge, and the apex subtruncate. Prosternum with a small rounded lobe in front; surface very sparsely and coarsely punctate; prosternal process flat, triangularly expanded behind the coxal cavities, and with a very short obtuse tooth at apex. Femora robust; anterior pair with a large acute tooth on

the outer edge, closer to the apex than base, and not serrate on the exterior margin. Anterior tibiae arcuate, feebly flattened on the inner surface, and without any dilatations; middle and posterior pairs straight and subcylindrical.

Length, 4.5 mm; width, 2.1 mm.

Type locality.—Port-au-Prince, Haiti.

Type.—Cat. No. 26811, U.S.N.M.

This species was described from a single female received from H. F. Wickham, and was collected by R. J. Crew at the type locality. It is closely allied to *C. thoracica* Fabricius, but differs from it in a number of ways. The head is more finely punctured, more strongly granulose, and the sides of the punctures not forming a network of polygonal areas as in *thoracica*. The pronotum is more arcuately attenuate posteriorly, the punctures on disk more elongate, and widely separated; and the elytra has an obsolete costa along the lateral margin, the basal foveæ more rounded and deeply impressed, the green basal fascia not extended along the suture behind the scutellum, and the disk with four round green foveæ, the median ones deeply impressed.

CHRYSOBOTHRIS THORACICA (Fabricius)

Buprestis thoracica FABRICIUS, Ent. Syst. Suppl., 1798, p. 138.

Buprestis amabilis HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 144–145.
pl. 147, fig. 5.

Male.—Form small, short, rather robust and feebly convex, and subopaque; head bright green, with the reliefs on front cupreous; pronotum reddish-cupreous with the anterior margin aureous; scutellum dark green; elytra brownish-aeneous, and each elytron ornated with nile-green markings as follows: A broad fascia along base, extending backward for a short distance along suture, this fascia is also extended around the humeral angle, an irregular transverse spot in front of middle, and a small post-median spot, which is closer to the lateral margin than the suture; there is also a black spot behind the humerus and a similar one along the lateral margin at middle. Beneath piceous, with a strong aeneous tinge at middle, and becoming aeneo-purpureous at the sides of abdomen; prosternum green, becoming cupreous at the sides; legs violaceous, the anterior femora green on the exterior surface.

Head feebly convex, with the front triangular and the sides feebly arcuately rounded; occiput narrow and longitudinally carinate; front not impressed; vertex with an obsolete transverse arcuate elevation, forming an arc with the sides of the front; surface densely and coarsely punctate, the punctures rather shallow, irregular, and nearly confluent, the sides forming a network of polygonal areas, bottom of punctures granulose, and from the center of which arises

a rather long inconspicuous hair; eyes large, strongly convex, more acutely rounded at bottom than at top, and separated on the occiput by about one-half the distance between the antennal cavities; epistoma deeply and narrowly emarginate in front, the lobe on each side forming an arc from the bottom of the emargination; antennae short, cupreous, the third joint about as long as the following two joints united. Pronotum strongly transverse, one and three-fourths times as wide as long, widest at apical third, slightly narrower behind than in front; sides broadly rounded anteriorly, then obliquely attenuate to the posterior angles, which are rather obtuse; anterior margin feebly arcuately emarginate; base rather strongly bisinuate, with the median lobe broadly rounded and feebly truncate in front of scutellum; surface evenly convex and without impressions, densely and coarsely punctate, the punctures rather deep and well separated; intervals finely and densely granulose. Scutellum small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to behind middle, where they are slightly wider, then arcuately attenuate to the tips, which are separately narrowly rounded; lateral margins coarsely serrate to middle, the teeth very short and widely separated; humeri prominent; base feebly angularly lobed; surface without costae, but each elytron with a deep round impression at basal lobe, a broader but more shallow one at humerus, an obsolete one along margin behind humerus, and a broad obsolete impression on the antemedian green area, coarsely, densely, and irregularly punctate, the punctures somewhat confluent toward the apex; intervals densely and coarsely granulose. Abdomen beneath coarsely, deeply, and irregularly punctate; intervals obsoletely granulose and more shining than above; first segment not impressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex feebly truncate. Prosternum with a narrow rounded lobe in front; surface more densely punctured than abdomen; prosternal process flat, triangularly expanded behind the coaxal cavities, and with a very small obtuse tooth at apex; anterior coxal cavities separated from each other by about their own diameter. Femora robust; anterior pair with a large acute tooth on the outer edge, closer to the apex than base, and finely serrate on the exterior margin. Anterior tibiae feebly arcuate near base, somewhat flattened, and with an obsolete dilatation on inner margin near apex; middle and posterior pairs straight and subcylindrical.

Length, 5.4 mm.; width, 2.5 mm.

This species was described by Fabricius (1798) from the Island of St. Thomas, and the above description was made from a specimen from the type locality, kindly loaned by the British Museum. Herbst

(1801) described and figured the same species from an unknown locality under the name *amabilis*.

In the U. S. National Museum collection are two specimens from Porto Rico, which I have placed under this species, one collected by G. B. Merrill at Guanica, April 15, 1914, and the other by E. G. Smyth at Santa Rita, during July, 1913. The specimen from Guanica is a male, of the same size as the specimen from the type locality, and only differs from it in a few minor details. The elytral markings, with the exception of the basal ones, are aeneous, and the blackish area is more extended on the disk. The specimen from Santa Rita is a female and is larger than the other specimens, measuring 6.25 mm. in length and 2.75 mm. in width, the head is cupreous in front and a little more convex, elytral markings about the same as specimen from Guanica, the under side is uniformly piceous, the first abdominal segment feebly impressed at middle, and the last segment more broadly rounded at the apex.

CHRYSOBOTHRIS INSULANA, new species

Female.—Form broadly elongate, moderately convex, and subopaque; head and pronotum aeneous, with a slight cupreous tinge; scutellum and elytra reddish-cupreous, the latter somewhat purpureous on disk, and each elytron ornated with bluish-green spots as follows: A rather broad fascia extending from basal depression transversely along the base and around the humeral angles, an oblong depressed spot on disk just in front of middle, an irregular transverse fascia at apical third, extending from the lateral margin to the disk but not reaching the suture, a small spot covering the apical area; beneath piceous, with a slight aeneous or greenish tinge, and more shining than above, the elytral epipleura cupreous; tarsi cyaneous.

Head feebly convex, with the front triangular and the sides feebly arcuately rounded; occiput narrow, and feebly longitudinally carinate; front not impressed; vertex with an obsolete arcuate transverse elevation forming an arc with the sides of the front; surface densely and coarsely punctate, the punctures very shallow, without well-defined sides, and from each arises a short recumbent cinereous hair; intervals densely and rather coarsely granulose; eyes large, reniform, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about one-third the distance between the antennal cavities; epistoma broadly triangularly emarginate in front, with the lobes broadly rounded; antennae short, the third joint only slightly longer than the following two joints united. Pronotum strongly transverse, one and two third times as wide as long, widest near middle, and the base and apex

about equal in width; sides regularly arcuately rounded; anterior margin broadly arcuately emarginate, without a median lobe; base broadly arcuately emarginate on each side at elytral lobe, with the median lobe broadly rounded, and truncate in front of scutellum; posterior angles rather obtuse; surface evenly convex, and without impressions, rather densely and regularly punctate, the punctures rather deep, well separated, and becoming somewhat coarser toward the sides; intervals finely and densely granulose. Scutellum very small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly rounded at humeral angles, nearly parallel to apical third, where they are slightly wider, then arcuately attenuate to the tips, which are separately broadly rounded; lateral margins rather strongly serrate to near the middle; humeri not very prominent; base broadly arcuately lobed; surface without costae, but each elytron with a round deep basal impression, a shallow one at humerus, a long narrow one along lateral margin behind humeral angles, a large round deeper impression in the ante-median green area, and a smaller one in the post-median green fascia, densely and regularly punctate, the punctures rather deep and well separated on the disk, but becoming obsolete in the humeral areas; intervals densely and rather coarsely granulose. Abdomen beneath sparsely and coarsely punctate, the punctures shallow, irregularly placed, and from each arises a short inconspicuous cinereous hair; intervals obsoletely granulose; first segment not impressed at middle; last segment with the lateral margins entire, with an obsolete serrate submarginal ridge, and the apex broadly subtruncate. Prosternum with a narrow declivous lobe in front; surface more deeply punctured than the abdomen; prosternal process flat, strongly expanded behind the coxal cavities, and with a triangular tooth at apex; anterior coxal cavities separated by about their own diameter. Femora robust; anterior pair with a large acute tooth on the outer edge, closer to the apex than base, and finely serrate on the exterior margin. Anterior tibiae feebly arcuate, strongly flattened, without any dilatations, the middle and posterior pairs straight and subcylindrical.

Length, 6 mm.; width, 3 mm.

Type locality.—Jamaica.

Type.—British Museum.

Described from a single female kindly loaned by the British Museum and labeled Jamaica, without a definite locality.

It is closely allied to *Chrysobothris lepida* Castelnau and Gory, but can be easily distinguished from that species by the pronotum having the sides arcuately rounded and not angulated anteriorly. It is also related to *C. wolcotti* Fisher from Porto Rico, but in

insulana the pronotum is arcuately rounded and widest near the middle, the elytral markings are smaller, and the basal and median ones not connected along the suture.

CHRYSOBOTHRIS SEXFASCIATA Schaeffer

Chrysobothris sexfasciata SCHAEFFER, Journ. N. Y. Ent. Soc., vol. 26, 1918,
pp. 212–213.

Male.—Form small, short, rather robust and feebly convex, and subopaque; head cupreous, with a strong aeneous tinge, the occiput and margins along eyes green; pronotum and elytra dark purpureous, with a feeble greenish tinge, each elytron ornated with golden-green markings as follows: A transverse basal fascia extending along the lateral margin and connected to a feebly oblique ante-median fascia, which does not reach the suture, a rather broad irregular transverse fascia at apical third, which does not extend to the suture nor lateral margin, and a small spot covering the apical region. Beneath piceous, with the sides of the abdominal segments bright green, and the legs purpureous, with a strong aenous tinge on the exterior surface of the anterior femora; antennae cupreous; tarsi cyaneous.

Head feebly convex, with the front triangular and the sides rather strongly arcuately rounded; occiput narrow, and feebly longitudinally carinate; vertex with an arcuate elevation forming an arc with the sides of the front; surface coarsely and densely punctate, the punctures shallow, nearly confluent, with the sides not well defined, and the intervals densely and rather coarsely granulose, from each puncture arises a rather moderately long, semierect, cinereous hair; eyes large, strongly convex, more acutely rounded at bottom than on top, and separated on the occiput by about one-half the distance between the antennal cavities; epistoma deeply and broadly triangularly emarginate in front, with the lobe on each side strongly angulated at middle; antennae short, the third joint about as long as the following two joints united. Pronotum strongly transverse, two times as wide as long, widest at middle, and slightly narrower in front than behind; sides arcuately rounded; anterior margin arcuately emarginate, and without a median lobe; base rather strongly bisinuate, the median lobe broadly rounded, and truncate in front of scutellum; surface evenly convex, and without impressions, rather densely, but not coarsely punctate, the punctures deep, and well separated on disk, becoming coarser and confluent at sides, and separated by obsolete rugae near the posterior angles; intervals densely and coarsely granulose. Scutellum small, triangular, the sides equal in length, and the surface obsoletely granulose. Elytra distinctly wider than pronotum at base; sides broadly

rounded at humeral angles, nearly parallel to behind middle, where they are slightly wider, then arcuately attenuate to the tips, which are separately narrowly rounded; lateral margins coarsely serrate to middle, the teeth short, and widely separated posteriorly; humeri rather prominent; base feebly angularly lobed; disk without longitudinal costa, but with an obsolete longitudinal costa along lateral margin, extending from the humeri to post-median green fascia, with a deep basal depression, and a more obsolete one at humeri and on green ante-median fascia; surface coarsely and densely punctate; intervals coarsely and densely granulose. Abdomen beneath coarsely punctate, with the posterior and anterior margins of the segments smooth, the intervals finely and densely granulose, more shining than above, and the sides of the segments with smooth obsolete nodules; first segment not impressed at middle; last segment with the lateral margins entire, with an obsolete submarginal ridge, and the apex subtruncate. Prosternum with an obsolete lobe in front; surface rather coarsely and densely punctate; prosternal process flat, triangularly expanded behind the coxal cavities, and with a very short obtuse tooth at apex. Femora robust; anterior pair with a sharp acute tooth on the outer edge, closer to the apex than base, and not serrate on the exterior margin. Anterior tibiae feebly arcuate, flattened on the inner surface, and without any dilatations; middle and posterior pairs straight and subcylindrical.

Length, 4.25 mm.; width, 2 mm.

This species was originally described from Key West, Florida, by Schaeffer from a female specimen. Two males from Cuba in the United States National Museum have been examined, one collected at Cayamas, June 23, by E. A. Schwarz, and the other received from H. F. Wickham and simply labeled Cuba. There is also a specimen in the collection of S. C. Bruner, collected at Camaquey, Cuba, July 20, 1923, by J. Acuña.

Mr. Schaeffer has kindly compared the Cuban specimen with his type in the Brooklyn Museum and writes that it only differs from the type in having the head more metallic green above and the abdominal segments metallic green at the sides. The type being a female, and the specimen from Cuba a male, would account for this slight color difference.

CHRYSOBOTHRIS SEXFASCIATA, var. JAMAICENSIS, new variety

Female.—This variety differs from the typical species by the head being entirely purpureous, with only a slight aeneous tinge, sides of the pronotum more parallel and not as arcuately rounded, and the lateral margins more rounded and not as sharply defined; elytra not as densely nor deeply punctate, the punctures becoming obsolete toward the apex, the green spots more bluish, and the antemedian

one larger, more oval, and not connected along the lateral margin to the transverse basal fascia, the discal spots more strongly impressed, surface more obsoletely granulose, and the lateral margins more strongly serrate. Abdomen beneath more coarsely and sparsely punctate, the punctures very shallow and without well-defined margins, and the sides of the segments without smooth nodules.

Length, 4.25 mm.; width, 2 mm.

Type locality.—Kingston, Jamaica.

Type.—Cat. No. 26812, U.S.N.M.

This variety is described from a single female collected by Frank R. Mason at Liguanea Plain, Kingston, Jamaica, on July 5, 1920. Through the kindness of Mr. Mason the type has been deposited in the National Museum collection.

Genus DICERCA Eschscholtz

Dicerca ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint p. 8).

Dicerca LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 35–36.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 93–108, pls. 24–27.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 130–133.

Stenuris KIRBY, Richardson's Fauna Bor Amer., vol. 4, 1837, pp. 154–156.

Head flat, rugose, and slightly wider in front than on vertex; front not narrowed by the insertion of the antennae; epistoma short and emarginate in front; antennal cavities small and rounded, situated at a considerable distance from the inner margin of the eyes in a deep triangular depression, which is surrounded on two sides by a strongly elevated carina. Antennae short and slender, extending to about the middle of pronotum; first joint short and clavate; second and third shorter and more slender, and about equal in length; fourth longer than third, and feebly triangular; following joints triangular, dentate on the inner side, and armed with a poriferous fovea, situated on the inferior side at the apical margin of the joint. Eyes rather small, oval, about two times as long as wide, feebly convex, and closer together on the vertex than at the front. Pronotum wider than long, more or less longitudinally grooved or carinate at the middle; sides variable, sometimes constricted behind, with the posterior angles acute; base bisinuate. Scutellum very small, rounded or subquadangular. Elytra elongate, sinuate at posterior coxae, and strongly acuminate posteriorly, often produced into a tail-like process; apex unarmed, sinuate or bidentate. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches somewhat elongate; metasternum rounded in front and feebly grooved at middle. Prosternum flat, concave or grooved; anterior margin declivous, sinuate or bilobed; prosternal

process not strongly constricted by the anterior coxal cavities and broadly rounded or acuminate at apex. Posterior coxae strongly dilated internally; anterior margin sinuate; posterior margin arcuately emarginate and strongly attenuate to the lateral margin. Legs rather robust, femora fusiform, the anterior and middle ones more strongly swollen at middle than the posterior pair; tibiae straight and cylindrical, the anterior pair spatulate at apex; tarsi rather broad; first joint of posterior pair not longer than the following joint. Abdomen with the suture between the first and second segments distinct; first segment flat, concave or longitudinally grooved; last segment variable. Body elongate, oval, rather convex, always acuminate or bifurcate at apex.

This is not a very large genus, containing only about 40 described species, and which are confined to the Palaearctic and Nearctic Regions. The two species recorded in the present paper from the West Indies are certainly not indigenous to these islands, but have been introduced at various times through commerce. The two species can be separated by the following characters.

KEY TO THE SPECIES

- Pronotum and elytra very uneven, the latter with distinct smooth elevated spaces----- *tuberculata* Castelnau and Gory.
Pronotum and elytra not distinctly uneven, the latter with only obsolete elevated spaces----- *divaricata* (Say).

DICERCA TUBERCULATA Castelnau and Gory

Dicerca tuberculata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838,
Buprestis, p. 99, pl. 25, fig. 135.—CHEVROLAT, Ann. Soc. Ent. France,
ser. 4, vol. 7, 1867, p. 577 (separates p. 153).—GUNDLACH, Contribu-
cion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 159–160, No. 1542.

Dicerca hilaris LECONTE, Trans. Amer. Philos. Soc., new ser., vol. 11, 1859,
p. 200.

Dicerca manca LECONTE, Trans. Amer. Philos. Soc., new ser., vol. 11, 1859,
p. 201.

Female.—Form rather narrowly elongate, attenuate behind, and moderately convex; above uniformly cupreous, sometimes with a greenish tinge, and the reliefs smooth and more brownish-cupreous; beneath more reddish-cupreous.

Head feebly convex and very uneven; surface coarsely, densely and deeply punctate, the punctures irregular in size, confluent and forming a number of smooth elevated rugae, sparsely clothed with short, inconspicuous hairs; epistoma broadly arcuately emarginate in front; eyes oblong, about two times as long as wide, and feebly converging above. Pronotum nearly two times as wide as long, widest at the apical third, apex and base about equal in width; sides strongly obliquely expanded from apex to apical third, where they

are strongly angularly rounded, then broadly arcuately emarginate, and strongly attenuate to the posterior angles, which are nearly rectangular; anterior margin broadly arcuately emarginate, with a broadly rounded median lobe; base feebly bisinuate; disk very uneven, with four shining, elevated irregular vittae, the lateral ones broader and strongly interrupted behind the middle, and the median ones enclosing a small shining callus at the middle, there is also an irregular elevation extending forward from the posterior angles; surface coarsely, densely, and confluent punctate in the depressions. Scutellum small, sub-quadrata and finely granulose. Elytra wider than pronotum at base, broadly rounded behind humeri, strongly sinuate at basal third, broadly expanded behind middle, then strongly attenuate to the tips, which are slightly expanded and divergent, and rounded or subtruncate at apex; surface uneven, with numerous irregular smooth elevated spaces, the depressions densely, coarsely, and confluent punctate, with a few deeper punctures intermixed, which are green at the bottom, and tend to form striae on the disk. Abdomen beneath coarsely, rather sparsely and irregularly punctate, and sparsely clothed with a few short recumbent hairs; intervals obsoletely granulose; first segment obsoletely flattened at middle; last segment elongate, acutely rounded at apex, and the surface not bicostate. Prosternum feebly convex, broadly transversely depressed anteriorly, and without elevated costae; surface densely, coarsely, and confluent punctate, and sparsely clothed with short inconspicuous hairs; anterior margin truncate; prosternal process broadly sulcate at middle, feebly expanded behind the anterior coxal cavities, then strongly attenuate to apex, which is broadly rounded.

Length, 15 mm.; width, 6.5 mm.

This species was described by Castelnau and Gory (1838) from North America. It is distributed over the eastern part of the United States, but because of much confusion in the identification of the species of this genus, it is difficult to give its distribution.

Chevrolat (1867) records it from North America; Havana, Cuba; and Senegal, and states that it has, without doubt been imported into the two last countries in lumber. In the collections of Chevrolat, Gundlach, and Poey. Gundlach (1891) records it from Habana, Cuba, as having been introduced from the United States.

This species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 842 in the Gundlach Museum in Habana.

No specimens of this species have been examined from the West Indies, and the above description was made from a specimen from the United States, which agrees fairly well with Castelnau and Gory's short description.

DICERCA DIVARICATA (Say)

Buprestis divaricata SAY, Journ. Acad. Nat. Sci., Phila., vol. 3, 1823,
pp. 163-164.

Dicerca dubia MELSHEIMER, Proc. Acad. Nat. Sci., Phila., vol. 2, 1844,
p. 142.

Dicerca aurichalcea MELSHEIMER, Proc. Acad. Nat. Sci., Phila., vol. 2, 1844,
pp. 142-143.

Dicerca parumpunctata MELSHEIMER, Proc. Acad. Nat. Sci., Phila., vol. 2,
1844, p. 143.

Male.—Form more broadly elongate than *tuberculata*, attenuate behind, and moderately convex; above aeneo-cupreous, with the tips of elytron usually more reddish, and the surface with obscure and blackish elevations; beneath slightly more reddish-cupreous than above.

Head feebly convex, and obsoletely concave at middle; surface coarsely and very densely punctato-rugose, the punctures somewhat irregular and confluent, with the bottoms bright green, sparsely clothed with long, inconspicuous hairs; eyes oblong, about two times as long as wide, and feebly converging above; epistoma broadly, and rather deeply arcuately emarginate in front. Pronotum nearly two times as wide as long, widest near middle, slightly narrower in front than behind; sides strongly obliquely expanded from apex to near middle, where they are strongly rounded to basal third, then nearly parallel to the posterior angles, which are nearly rectangular, anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; base feebly bisinuate; disk obsoletely sulcate at middle, more deeply impressed anteriorly, and with a deep prescutellar fovea, and on each side, there is usually a more or less oblique impression behind the middle; surface coarsely and rather densely punctate, the punctures somewhat confluent, irregularly placed, and forming irregular smooth elevations. Scutellum small, subquadrate, and finely striolate. Elytra wider than pronotum at base, feebly rounded behind humeri, sinuate at basal third, then strongly arcuately attenuate to near the tips, where they are parallel and slightly divergent, the apex subtruncate, with the sutural angle acutely produced; surface rather even, with two short longitudinal costae at the apex of each elytron, the exterior one being the longer, striato-punctate, the striae not deeply impressed, and becoming obsolete toward the sides, with the punctures coarse and well separated, intervals coarsely and irregularly punctate, the punctures in some areas confluent and forming areolae, which are not very well defined. Abdomen beneath coarsely and rather densely punctate, the punctures irregularly placed, and with the posterior margins not very well defined, and sparsely clothed with long, fine recumbent hairs; intervals smooth; first segment very broadly and rather deeply concave at middle; last

segment rather elongate, and acuminate posteriorly, with the apex deeply and rectangularly emarginate, the surface with two obsolete costae. Prosternum feebly convex, surface very coarsely and densely punctate, and sparsely clothed with long, erect, inconspicuous hairs; anterior margin bisinuate; prosternal process wide, deeply and broadly sulcate at middle, the sides smooth and extending forward to near the anterior margin, with the bottom of the sulcus transversely rugose, sides parallel to behind the anterior coxal cavities, then strongly obliquely attenuate to the apex, which is broadly rounded.

Female.—Differs from the male in having the head more sparsely punctate; abdomen beneath more sparsely pubescent, the first segment not as deeply concave at middle, last segment deeply arcuately emarginate at apex, with a distinct tooth at the middle of the emargination, and the surface more distinctly bicostate; prosternal process not deeply sulcate at middle, with the median part coarsely, densely punctate, and very sparsely pubescent.

Length, 17–20 mm.; width, 5.5–6.5 mm.

This species was originally described by Say (1823) from the United States. It is rather abundant throughout the northeastern part of North America from Canada to Kentucky and westward to Wisconsin, the larvae living in a great variety of deciduous trees.

The admission of the species in the present paper is based on two specimens received from the British Museum and labeled "Haiti, Saunders 74–18," which were probably introduced in lumber from the United States.

A number of species described by Casey²² have been placed as synonyms of this species by Leng,²³ but since the types of these species have not been examined, they are omitted from the synonymy in the present paper.

Genus PARACINYRA, new genus

Head nearly flat, wider in front than on vertex; front not narrowed by the insertion of the antennae; epistoma short and emarginate in front; antennal cavities small, rounded, and partially covered by an elevated carina, and situated a considerable distance from the inner margin of the eyes. Antennae rather short and slender, extending to about the middle of the pronotum; first joint elongate and feebly clavate; second short and slightly elongate; third more slender, cylindrical, and about two times as long as the second; the following joints triangular, dentate on the inner side, and armed with a poriferous fovea situated on the inferior side at apical margin of the joint. Eyes rather broadly oval, nearly two times as long as

²² Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 144–149.

²³ Cat. Coleopt. North America, 1920, p. 180.

wide, strongly convex, feebly projecting, and closer to each other on the vertex than at the front. Pronotum wider than long, wider in front than behind; anterior margin and base more or less bisinuate; sides feebly attenuate posteriorly; disk without a longitudinal median sulcus. Scutellum small, transverse, and not acuminate posteriorly. Elytra elongate, strongly attenuate posteriorly, and acuminate at apex. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches rather small, elongate, and feebly oblique; metasternum feebly emarginate in front and with a very narrow groove at the middle. Prosternum moderately wide, convex, with the anterior margin rounded; prosternal process feebly constricted by the anterior coxal cavities, and rather acuminate at apex. Posterior coxae about equally dilated internally and at the sides; anterior margin strongly bisinuate; posterior margin deeply arcuately emarginate at the middle. Legs moderately robust; femora slightly swollen at middle; tibiae straight and subcylindrical; tarsi short, first joint of posterior pair only slightly longer than the second; tarsal claws with an obtuse tooth at the base. Abdomen with the suture between the first and second segments distinct. Body narrow, subcylindrical, and strongly acuminate posteriorly.

Genotype.—*Paracinyra viridimaculata*, new species.

This genus is closely allied to *Cinyra* Castelnau and Gory, but it is much narrower and more cylindrical in form, pronotum wider in front than behind, and not distinctly sulcate at the middle, tips of the elytron strongly acuminate, prosternal process more strongly expanded behind the anterior coxal cavities, and the first joint of the posterior tarsi only slightly longer than the second joint.

PARACINYRA VIRIDIMACULATA, new species

Form narrow and subcylindrical, broadly rounded in front, and strongly acuminate behind; head purpureous, with a strong greenish tinge, and with the epistoma and a narrow margin along the eyes aureo-cupreous; pronotum purpureous, strongly greenish when viewed in certain lights, and with the anterior margin and a rather broad longitudinal median band aureo-cupreous; scutellum reddish-cupreous; elytra purpureous, with a strong greenish tinge when viewed in certain lights, and each elytron ornamented with aureo-viridis markings as follows: A narrow band along the base extending along the lateral margin for a short distance and also along the suture to the basal fourth; an irregular subtriangular spot at basal third, feebly oblique but not extending to the suture nor lateral margin; a narrower band at apical third, which is transverse laterally and bent obliquely forward internally, the spot not extending to the lateral margin nor to the suture; there is also a longitudinal triangu-

lar spot at the apex. Beneath purpureous, with a strong greenish or bluish tinge, more shining than above, and with the sides of the abdomen aureo-cupreous.

Head nearly flat, with a broad longitudinal sulcus, which is narrower and more deeply impressed on the vertex, and becoming more obsolete toward the epistoma; surface glabrous, coarsely and densely punctate, the punctures rather shallow and very irregularly placed, the intervals smooth and shining; epistoma broadly and deeply arcuately emarginate in front, forming a broad obtuse tooth on each side of the emargination. Pronotum one and three-fourths times as wide as long, slightly wider in front than behind, widest at apical fourth; sides feebly arcuately expanded from anterior margin to apical fourth, then slightly obliquely narrowed to the posterior angles, which are rectangular; anterior margin nearly truncate, with an obsolete median lobe; base feebly bisinuate, the median lobe only feebly indicated; disk regularly convex, with a very short narrow groove terminating in a deep puncture in front of the scutellum; surface coarsely, deeply, and densely punctate, the punctures irregularly placed, distinctly separated on the disk, but becoming somewhat confluent at the sides, and with an irregular, longitudinal smooth median space, extending from the anterior margin to basal third, where it is replaced by the longitudinal groove, the intervals finely and densely granulose. Scutellum oblong, nearly two times as wide as long and with the surface obsoletely granulose. Elytra about as wide as pronotum at base, strongly acuminate posteriorly, allowing the abdomen to be plainly visible from above on the apical half; humeral angles obtusely angulated; sides feebly expanded behind the humeral angles, slightly attenuate to the apical third, where they are obsoletely arcuately rounded, then strongly, obliquely attenuate to the tips, which are very acute, the lateral margins obsoletely serrate posteriorly; surface striato-punctate, the striae not impressed, becoming more or less confused posteriorly, and the punctures large, rather deep, and irregularly placed in the striae, the intervals flat, transversely rugose, and with numerous irregularly placed punctures similar to those in the striae. Abdomen beneath strongly convex, rather finely, sparsely punctate, and sparsely clothed with a few short recumbent cinereous hairs; intervals obsoletely granulose; first abdominal segment convex at middle, last segment subtruncate at apex. Prosternum feebly transversely concave along anterior margin, which is broadly arcuately rounded, the surface sparsely, coarsely punctate, with a few very short cinereous hairs, and the intervals smooth on the median parts, but becoming strongly granulose at the sides; prosternal process flat, without a longitudinal sulcus, the sides slightly concave to behind the anterior coxal cavities, where they are feebly ex-

panded, then obliquely attenuate to the apex, which is rather acutely rounded.

Length, 10 mm.; width, 3.5 mm.

Type locality.—Guantanamo, Cuba.

Type.—Coll. Amer. Mus. Nat. Hist.

This beautiful species was described from a single example collected by Chas. T. Ramsden at the type locality on June 18, 1916. Superficially it resembles one of the larger species of the genus *Agrilus*, but it is easily separated from any species of that genus by having the lateral branches of the mesosternum elongate and not concealed by the prosternum.

Genus CINYRA Castelnau and Gory

Cinyra CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 157–160, pl. 39.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 45–46.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 137–138.

Cynira SAUNDERS, Catal Bupr., 1871, p. 47.

Leptia (part) DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 89.
(No described species included.)

Head flat or feebly convex, wider in front than on vertex; front not narrowed by the insertion of the antennae; epistoma short and emarginate in front; antennal cavities small, rounded, partially covered by an elevated carina, and situated a considerable distance from the inner margin of the eyes. Antennae rather long and slender, and about as long as the head and pronotum united; first joint elongate, and more or less clavate; second very short and globular; third and fourth elongate, feebly triangular, subequal in length, and about as long as the first; following joints elongate, triangular, dentate on the inner side, gradually decreasing in length to the last joint, and armed with a poriferous fovea situated on the inferior side at apical margin of the joint. Eyes rather small, oval, not two times as long as wide, strongly convex, somewhat projecting, and closer to each other on the vertex than at the front. Pronotum wider than long, narrower in front than behind; base and anterior margin bisinuate; sides subsinuate or obliquely attenuate anteriorly. Scutellum variable, rather small and often wider than long. Elytra elongate, strongly attenuate posteriorly, and obliquely truncate, emarginate or bidentate at apex. Sternal cavity formed by the mesosternum and metasternum; mesosternum divided, the lateral branches elongate and feebly oblique; metasternum rounded in front and feebly grooved at the middle. Prosternum wide, flat; anterior margin straight, sometimes strongly declivous; prosternal process not constricted by the anterior coxal cavities, but strongly acuminate at the apex. Posterior coxae strongly dilated internally; anterior margin straight; posterior margin oblique internally and strongly

arcuately emarginate toward the lateral margin. Legs feebly robust; femora subfusiform, the anterior and middle ones slightly more swollen at middle; anterior tibiae feebly arcuate, the middle and posterior pairs straight and subcylindrical; tarsi rather elongate; first joint of posterior pair subcylindrical and longer than the second. Abdomen with the suture between the first and second segments distinct. Body elongate, slender, and attenuate posteriorly.

This genus at present contains about 24 described species and is confined in its distribution to the western Hemisphere.

Four species have been recorded from the West Indies, all of which are very closely allied and difficult to separate. *C. albonotata* seems to be confined to Haiti, while the other three species have only been recorded from Cuba.

KEY TO THE SPECIES

1. Pronotum distinctly sulcate at middle _____ *sulcicollis* Chevrolat.
Pronotum not or only feebly sulcate at middle _____ 2.
2. Elytral foveae concolorous with remainder of surface; elytra nearly parallel behind humeral angles; anterior margin of prosternum declivous and interrupted at middle _____ 3.
Elytral foveae not concolorous with remainder of surface; elytra broadly rounded behind humeral angles; anterior margin of prosternum declivous and not interrupted at middle _____ *costulifera* Chevrolat.
3. Elytral foveae rounded, distinctly impressed and regular in size; sides of pronotum parallel posteriorly _____ *multipunctata* (Olivier).
Elytral foveae more irregular, not as distinctly impressed, and more irregular in size and shape; sides of pronotum oblique posteriorly, widest at base _____ *albonotata* (Castelnau and Gory).

CINYRA SULCICOLLIS Chevrolat

Cinyra sulcicollis CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 580 (separates p. 156).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 163, no. 1418.

The following is a translation of Chevrolat's original description:

Elongate, bronzy green with pupureous reflections; head green, and longitudinally rugose, sulcate behind, with a smooth area between the eyes and a short sulcus above; antennae slender and greenish-blue; eyes fuscous; thorax vaguely punctate, with four violaceous foveae placed quadrangularly, and longitudinally impressed at front and base; scutellum round, smooth, and concave; elytra emarginate at apex, near the suture caniculate posteriorly; each elytron bispinose, outside feebly punctate-striate, and inside sulcate-striate, interstice confusedly punctate, with several sparse foveae which produce a costa; body beneath and legs punctate, greenish-blue, the abdomen sparsely clothed with short hairs, and with small glabrous spots at the sides.

Length 15.5 mm.; width, 5 mm.

Cuba, eastern part of the island in July. Collections of Gundlach and Poey.

This species is close to *C. armata* Laporte and Gory, and I place it in that series. It is distinguished from the two preceding (*costulifera* and *multipunctata*) by the groove on the pronotum and by the feebly punctiform impressions on the elytra, which are about eight in number on each elytron.

Chevrolat states that it can be distinguished from the two other Cuban species, *costulifera* and *multipunctata*, by the pronotum being sulcate. Since both of these species have the pronotum feebly sulcate at the middle and were represented in his collection, his species *sulcicollis* is probably broadly and deeply sulcate.

Gundlach (1891) records collecting it at Caimanera, near the Bay of Guantanamo, Cuba.

This species is not represented in the Poey collection in Philadelphia, but there is a single example, labeled No. 1418, in the Gundlach Museum in Habana, which was not available for study.

The species has been placed in the key solely upon the characters given in the original description, as no specimens have been available for study.

CINYRA COSTULIFERA Chevrolat

Cinyra costulifera CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 579 (separates, p. 155).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, p. 162, no. 105.

Male.—Form elongate, more robust than *albonotata* or *multipunctata* and more flattened above; head dark aeneo-cupreous, more cupreous at epistoma, and becoming aureo-cupreous on the occiput, bottom of punctures bright green; pronotum and elytra aeneo-cupreous, the latter feebly purplish, with numerous bright cupreous or aureous foveae; beneath aeneo-cupreous, with purplish, greenish, or cyaneous reflections, more shining than above, and the sides of the abdominal segments ornated with sparsely clothed pubescent spots.

Head feebly, evenly convex, without depressions, but with a distinct longitudinal carina on the occiput; front with the sides abliquely converging to the vertex; surface deeply, rather densely and irregularly punctate, with numerous irregular smooth spaces on the front, and sparsely clothed with short inconspicuous hairs; epistoma broadly and deeply arcuately emarginate at middle, the lateral angles of the emargination acutely rounded. Pronotum one and one-half times as wide as long, slightly narrower in front than behind; sides feebly obliquely expanded from anterior margin to apical fourth, then nearly parallel to the posterior angles, which are rather acute; anterior margin nearly truncate, with an obsolete, broadly rounded median lobe; base feebly bisinuate; disk with an obsolete median sulcus, a deep ante-scutellar fovea, and four densely punctured im-

pressions, two at the base and two in front of the middle, forming a transverse quadrangle, the two basal ones more deeply, abruptly and transversely impressed; surface coarsely, deeply and rather densely punctate, the punctures more remote on the post-median part, and the four impressions rather densely clothed with short cinereous hairs. Scutellum rounded, subtruncate in front, and the surface obsoletely striolate. Elytra distinctly wider than pronotum at base, broadly rounded at humeral angles, arcuately expanded to behind humeri, nearly parallel to apical third, then strongly arcuately attenuate to the tips, which are truncate and rather deeply emarginate; surface striate-punctate, the striae feebly impressed, somewhat confused, and interrupted by the foveae, and the punctures in the striae very small and obsolete, intervals flat, and coarsely, rather densely, and irregularly punctate; each elytron with a number of feebly impressed foveae, arranged as follows: First, near scutellum; second, third, and fourth on the second stria, the second one small, and situated at middle, fourth, and fifth larger, one at the apical third, the other at apex; fifth and sixth large, round, and situated between the third and fifth striae, one just in front of middle, the other behind the middle; seventh near humeral angle; eighth behind the humerus; six along the lateral margin, one behind the humerus, one near the apex, and the other four about equally distance apart; all of the impressions rather densely clothed with short fulvous hairs. Abdomen beneath coarsely, rather densely and irregularly punctate, and rather densely clothed with long recumbent cinereous hairs; first segment feebly flattened at middle; last segment truncate at apex, with a deep transverse crescent shaped depression behind the apical margin. Prosternum feebly convex; surface coarsely, sparsely punctate, and nearly glabrous; anterior margin broadly, abruptly and strongly declivous along entire margin; prosternal process feebly convex, parallel to behind anterior coxae, then obliquely attenuate to the apex, which is acutely rounded.

Female.—Similar to the male with the exception that the head is dark aeneo-cupreous, the punctures are not green at the bottom, and the body beneath not quite as pubescent.

Length, 15–17 mm.; width, 5–5.75 mm.

This species is closely allied to *albonotata* and *multipunctata*, but differs from both these species in being more robust and parallel posteriorly, the elytra more broadly rounded behind the humeri, the elytral foveae of a different color from the remainder of the surface, and the anterior margin of the prosternum not interrupted at the middle.

The species was described by Chevrolat (1867) from Cuba, and stated that it was found in the central and eastern part of the island

in the collections of Gundlach and Poey. Gundlach (1891) records it from both parts of Cuba.

The following material has been examined. Coll. Acad. Nat. Sci. Phila.: Cuba (Poey Coll. No. 11). Coll. Amer. Mus. Nat. Hist.: Rio Seco, Guantanamo, Cuba, June 8, 1908 (Chas. T. Ramsden). U. S. Nat. Mus.: Santiago de Cuba. (Donated by the Amer. Mus. Nat. Hist.) There is also a specimen labeled No. 105 in the Gundlach Museum in Habana which has not been examined.

CINYRA MULTIPUNCTATA (Olivier)

Buprestis multipunctata OLIVIER, Entom., vol. 2, gen. 32, 1790, pp. 86-87, pl. 12, fig. 137.—HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 180-181, pl. 151, fig. 7.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit, et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French edition), p. 61; (Spanish edition) vol. 7, 1857, p. 27.

Ancylochira multipunctata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 148-149, pl. 36, fig. 204.

Cinyra multipunctata CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 579-580 (separates, pp. 155-156).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 162-163, no. 1261.

Form elongate, slender, and moderately convex; head aureo-cupreous; pronotum and elytra cupreous, with a slight aeneous tinge and ornated with numerous cinereous pubescent spots; beneath cupreous, with a strong aeneous or purpureous tinge, more shining than above and the sides of the abdominal segments ornated with small dense cinereous pubescent spots.

Head feebly and evenly convex, without depressions, but with an obsolete longitudinal carina on the occiput; front with the sides obliquely converging to the vertex; surface nearly glabrous, deeply and rather densely punctate, the punctures not quite as coarse but more irregularly placed than in *albonotata*; intervals smooth; epistoma broadly and deeply arcuately emarginate at middle, the lateral angles of the emargination acutely rounded. Pronotum one and two-fifth times as wide as long, slightly narrower in front than behind; sides feebly obliquely expanded from anterior margin to apical fourth, then nearly parallel to the posterior angles, which are nearly rectangular; anterior margin nearly truncate, with an obsolete, broadly rounded median lobe; base feebly bisinuate; disk feebly sulcate at middle, with a deep ante-scutellar fovea, and four densely punctured impressions, two at the base and two in front of the middle, forming a transverse quadrangle, the basal ones more deeply, abruptly, and transversely impressed; surface coarsely, deeply, and rather densely punctured, the punctures more remote on the post-median part and the four impressions and median sulcus rather densely clothed with short cinereous hairs. Scutellum small,

rounded, and the surface obsoletely striolate. Elytra slightly wider than pronotum at base, obtusely rounded at humeral angles, nearly parallel to behind humeri, slightly sinuate at posterior coxae, then arcuately attenuate to the tips, which are truncate and feebly bidentate; surface striato-punctate, the striae more deeply impressed than in *costulifera*, somewhat interrupted by the foveae, and the stria punctures small and obsolete, intervals flat, coarsely, densely, and irregularly punctate, the foveae round, distinct, and the arrangement similar to that of *costulifera*, but clothed with cinereous hairs. Abdomen beneath coarsely, rather densely, and irregularly punctate, and rather densely clothed with long recumbent cinereous hairs; first segment feebly flattened at middle; last segment subtruncate at apex, with a narrow transverse depression behind the apical margin. Prosternum feebly convex; surface coarsely, deeply, and rather densely punctate, and sparsely clothed with fine long, erect, cinereous hairs; anterior margin broadly but not abruptly declivous on each side of the middle; prosternal process flat, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded.

Female.—Similar to the male, except that the head is dark aeneo-brunneus, and the prosternum and abdomen beneath not quite as pubescent.

Length, 11.5–13 mm.; width, 3.75–4 mm.

This species resembles *albonotata* in general form, but the sides of the pronotum are more parallel and the disk more distinctly sulcate at the middle, the elytra more distinctly striate, and the elytral foveae larger, rounder, and more distinctly defined.

This species was originally described by Olivier (1790) from Sweden, but the locality being questionable, and later recorded by Castelnau and Gory (1838) from Habana, Cuba. Jacquelin Duval (1857) recorded it as having been found in Habana. Chevrolat (1867) recorded it from Cuba, and stated that material was in the collections of Gundlach, Poey, and Chevrolat. Gundlach (1891) records collecting it in the vicinity of "Bahia Honda y en la Fermina," Cuba.

The following material has been examined. Coll. British Mus.: One specimen labeled simply "Cuba." U. S. Nat. Mus.: Cuba (Chevrolat Coll.) (donated by the British Museum). The species is not represented in the Poey collection in Philadelphia, but there are two examples labeled No. 1261 in the Gundlach Museum in Habana which have not been seen by the writer.

CINYRA ALBONOTATA (Castelnau and Gory)

Ancylochira albonotata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838,
Buprestis, p. 149, pl. 36, fig. 205.

Male.—Form elongate, slender, and moderately convex; head aureo-viridis, becoming cupreous on the occiput; pronotum and elytra aeneo-cupreous and ornated with numerous cinereous pubescent spots; beneath similar in color to above, but more shining, the sides of the abdominal segments ornated with dense cinereous pubescent spots.

Head feebly and evenly convex, without depressions, but with a short longitudinal carina on the occiput; front with the sides obliquely converging to the vertex; surface nearly glabrous, coarsely, deeply, and rather densely punctate, the punctures regularly separated and not confluent; intervals smooth; epistoma broadly and deeply arcuately emarginate at middle, the lateral angles of the emargination acutely rounded. Pronotum one and three-fifths times as wide as long, distinctly narrower in front than behind, widest at base; sides obliquely converging from base to anterior margin; posterior angles nearly rectangular; anterior margin nearly truncate, with an obsolete, broadly rounded, median lobe; base feebly bisinuate; disk with an obsolete median sulcus, a deep ante-scutellar fovea, and four densely punctured impressions, two at the base and two in front of the middle, forming a transverse quadrangle, the two basal ones more deeply, abruptly, and transversely impressed; surface coarsely, deeply, and rather densely punctate the punctures more remote on the post-median part, and the four impressions rather densely clothed with short, cinereous hairs. Scutellum rounded, subtruncate in front, and the surface obsoletely striolate. Elytra slightly wider than pronotum at base, obtusely rounded at humeral angles, nearly parallel to behind humeri, feebly sinuate at posterior coxae, then arcuately attenuate to the tips, which are truncate and feebly bidentate; surface striato-punctate, the stria feebly impressed, and becoming obsolete at the base and toward lateral margins, the stria punctures very small and obsolete, intervals flat, coarsely, densely, and irregularly punctate, the foveae smaller, more irregular, and less distinct than in *costulifera* and *multipunctata*, but the arrangement is similar and the foveae sparsely clothed with very short, cinereous hairs. Abdomen beneath coarsely, rather densely, and irregularly punctate, and sparsely clothed with short, cinereous recumbent hairs; first segment feebly flattened at middle; last segment broadly truncate and feebly sinuate at apex, with a narrow transverse depression behind the apical margin. Prosternum feebly convex; surface coarsely and rather densely punctate, and sparsely clothed with fine, long, erect, cinereous hairs; anterior mar-

gin broadly, abruptly declivous on each side of the middle; prosternal process flat, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded.

Female.—Similar to the male, except that the head is aeneo-cupreous, and the prosternum and abdomen beneath not quite as densely pubescent.

Length, 13 mm.; width 4.5 mm.

This species was described by Castelnau and Gory (1838) from Port-au-Prince, Haiti, and seems to be confined to that island.

The following material has been examined. Coll. British Mus.: One specimen, labeled Haiti (Obert), compared with type, Kerremans, 1903–59, and two other specimens simply labeled St. Domingo. Coll. U. S. Nat. Mus.: Port-au-Prince, Haiti.

Genus BUPRESTIS Linnaeus

Buprestis LINNAEUS, Syst. Nat., 10 ed., 1758, pp. 408–410.—SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 279–281, pl. 10, fig. 10.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 40–42.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 140–143.—CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 87–128.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 75–109, pls. 5–6.

Ancylochira ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint p. 8).—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis* pp. 125–149, plts. 30–31; addenda p. 3.

Anoplis KIRBY, Richardson's Fauna Bor. Amer., vol. 4, 1837, pp. 151–154.

Head flat or feebly convex, the sides nearly parallel; front not narrowed by the insertion of the antennae, and sometimes feebly grooved; epistoma short, and usually more or less emarginate in front; antennal cavities small, rounded, and situated a considerable distance from the inner margin of the eyes. Antennae rather long and slender, nearly as long as the head and pronotum united; first joint elongate, more or less clavate; third joint at least two times as long as the second; the following joints elongate, triangular, dentate on the inner side, and armed with a poriferous fovea situated on the inferior side at the apical margin of the joint. Eyes rather large, about two times as long as wide, moderately convex, and very feebly converging above. Pronotum wider than long; sides oblique, or more or less arcuate, with the lateral edges feebly and narrowly margined posteriorly; base bisinuate. Scutellum small and rounded. Elytra dilated behind the humeri, attenuate posteriorly, truncate or rounded at apex, which is more or less bidentate; disk striato-punctate, with the intervals flat or elevated, sometimes the alternate intervals costate. Sternal cavity formed by the mesosternum and metasternum; Mesosternum divided, the lateral branches elongate and feebly oblique; metasternum emarginate in front and grooved at the middle.

Prosternum narrow, flat or depressed; anterior margin truncate or arcuately emarginate; prosternal process not constricted by the anterior coxal cavities, and obtusely acuminate at apex. Posterior coxae strongly dilated internally; anterior margin sinuate; posterior margin oblique. Legs rather slender; anterior and middle femora fusiform, the former more strongly swollen at middle; posterior pair flattened and subcylindrical; tibiae cylindrical, the anterior pair more flattened, and in the males sometimes armed with a large hook at the apex; tarsi rather robust; the first joint of posterior pair longer than the second joint. Abdomen with the suture between first and second segments distinct; last segment rounded at apex in female, truncate or feebly emarginate with two more or less acute teeth in the male. Body elongate-oval, feebly convex, enlarged at base of elytron, and attenuate in front and behind.

This genus at present includes about 60 described species, and is distributed over the entire North Temperate Zone, with a few species extending their range to near the equator, and are very troublesome to separate because of considerable variation in form, color, size, and sculpture within the species. The apex of the abdomen is more or less truncate in both sexes, sometimes more deeply sinuate in the male, but these secondary sexual characters are very inconstant and misleading, so that they should be used with caution in determining the sexes.

The present paper includes 10 species, two of which are new, which have been recorded or collected in the West Indies. Eight of these species have been described originally from North America, and since the larvae of most of the species live in various species of coniferous trees, they possibly have been introduced into the islands at various times in timber from the United States.

KEY TO THE SPECIES

- | | |
|--|---------------------|
| 1. Prosternum broadly sulcate at middle..... | 2. |
| Prosternum not or very feebly sulcate at middle..... | 6. |
| 2. Elytra striato-punctate..... | 3. |
| Elytra costate..... | 5. |
| 3. Elytral striae distinctly impressed; elytra aeneous, with a brownish or purpureous tinge, and ornated with irregular fulvous spots..... | |
| maculipennis Gory. | |
| Elytral striae not distinctly impressed..... | 4. |
| 4. Color above dull cupreous-brown..... | apricans Herbst. |
| Color above green; elytra occasionally with a median indigo-blue vittae and the suture and lateral margins always cupreous..... | decora Fabricius. |
| 5. Elytral costae flat, punctured; color above dark coppery-brown..... | striata Fabricius. |
| Elytral costae convex, their summits polished and not or very feebly punctured; color above green to ultramarine, the suture and lateral margins usually cupreous..... | aurulenta Linnaeus. |

6. Elytra with distinct spots or vittae..... 7.
 Elytra immaculate..... 9.
7. Elytron each with two reddish or fulvous vittae, more or less confluent and united..... *lineata* Fabricius.
 Elytron with fulvous spots or blotches..... 8.
8. Color above green to dark blue, the elytra ornated with irregular fulvous markings..... *fasciata* Fabricius
 Color above aeneous, with a brownish or purpureous tinge, the elytra ornated with irregular fulvous markings..... *maculipennis* Gory.
9. Elytral intervals between striae 2–3, 4–5, and 8–9 elevated and forming obtuse ridges..... *maculativentris* Say
 Elytral intervals flat..... 10.
10. Elytra fulvous, with the suture, lateral margins, and bottoms of striae purpureo-cupreous..... *cubensis* Fisher.
 Elytra piceous, with a strong purpureous or cupreous tinge..... *decipiens* Fisher.

BUPRESTIS MACULIPENNIS Gory

Buprestis maculipennis GORY, Mon. Bupr., Suppl., vol. 4, 1840, pp. 118–120, pl. 21, fig. 117.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405 (separate p. 55).—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 93–94, pl. 1, figs. 1–2.

Ancylocheira maculipennis DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 78; 3 ed., 1836, p. 88.

Buprestis inconstans MELSHEIMER, Proc. Acad. Nat. Sci., Phila., vol. 2, 1846, p. 146.

Buprestis deficiens CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 90–91.

Buprestis fusiformis CASEY, Proc. Wash. Acad. Nat. Sci., vol. 11, 1909, p. 91.

Buprestis scripta CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 91.

Buprestis reducta, CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 92.

Buprestis leporina CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 92.

Male.—Elongate oval, shorter and less attenuate posteriorly than *lineata*; head aeneous, front variable in color, sometimes yellowish or brick-red, with two central spots and a small spot at base of each antennae aeneous; pronotum and elytra aeneous, sometimes with a brownish or purpureous tinge, the former occasionally with the apical angles yellowish, the latter with yellowish markings, which are extremely variable, ranging from a few scattered spots to large confluent patches covering the entire elytra, except the humeri, suture, lateral margins, and a triangular spot in middle, extending from the lateral margins to suture and apex, but not forming vittae, as in *lineata*; beneath aeneous, the anterior part of prosternum, median part of sternum, and last abdominal segment more or less marked with yellow.

Head flat, with a feeble longitudinal carina on occiput; surface coarsely and irregularly punctate, and sparsely clothed with inconspicuous hairs; intervals smooth and rather shining; epistoma broadly, but feebly arcuately emarginate in front. Pronotum not

quite two times as wide as long, widest at base, distinctly narrower in front than behind; sides strongly, obliquely attenuate from base to apical angles; posterior angles acute and projecting; anterior margin nearly truncate at sides, with a broadly rounded median lobe; surface coarsely and rather densely punctate, the punctures deep and irregularly placed. Scutellum oval, somewhat truncate in front. Elytra a little wider than pronotum at base, slightly dilated behind the humeri, feebly sinuate at posterior coxae, then arcuately attenuate to the tips, which are truncate and rather strongly dentate; surface striato-punctate, the punctures fine, shallow, and distinctly separated; intervals nearly flat, with a few coarse, irregularly placed punctures. Abdomen beneath coarsely and rather densely punctate, the punctures variable in size and irregularly placed; intervals finely, densely granulose and sparsely clothed with fine semi-erect hairs; first segment broadly and deeply longitudinally grooved at middle; last segment broadly truncate at apex, with a small tooth on each side, the yellow spot at each anterior angle sometimes quite large and forming a fascia, but usually small and rarely missing. Prosternum flat, sparsely and coarsely punctate, and the anterior margin nearly truncate; prosternal process narrow, not or only obsoletely sulcate at middle, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded. Anterior femora strongly swollen at middle; anterior tibiae emarginate, flattened on the inner side and armed with a large broad hook; anterior tarsi much broader than the posterior ones.

Female.—Similar to the male, but the head is a little more convex, yellow markings not as much extended, last ventral segment more rounded at apex, and the yellow markings more prominent, the anterior tarsi more slender and the anterior tibiae not armed with a hook at the apex.

Length, 10–14.5 mm.; width, 4.5–6 mm.

The name *maculipennis* was first used in this genus by Dejean (1833), without giving any description, but Gory (1840) described the species from a specimen in the Dejean collection from North America. This species is distributed over the eastern United States from Maine to Louisiana and westward to Missouri. It is closely related to *lineata*, but can be readily distinguished from that species by the yellowish elytral markings, more oval in form, and distinctly brassy tinge. The larvae is recorded as living in pine and hemlock.

It has been recorded by Fleutiaux and Sallé (1890) from Guadeloupe, but no specimens of this species have been examined from the West Indies.

BUPRESTIS APRICANS Herbst

Buprestis apricans HERBST, Nat. Syst. Ins. Käfer, vol. 9, 1801, pp. 125–126, pl. 145, fig. 9.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, p. 88.

Buprestis nigricornis STURM, Cat. Ins. Samml., 1826, p. 105.

Ancylochira bosci CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 146–147, pl. 36, fig. 201.

Buprestis cribripennis CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 127.

Male.—Oblong oval, uniformly dull cupreous-brown, sometimes with a greenish or purplish tinge; beneath purpureous or aeneous, with a distinct cupreous tinge, and more shining than above.

Head feebly convex, with a more or less elevated median carina; surface very coarsely and densely punctate, the punctures confluent, and forming longitudinal rugae on the front, and rather densely clothed with long recumbent cinereous hairs; epistoma broadly, but feebly arcuately emarginate in front. Pronotum a little more than one and one-half times as wide as long; sides variable, in some specimens feebly, arcuately rounded and widest at middle, in others arcuately attenuate from base to apical angles and strongly sinuate at basal fourth; posterior angles nearly rectangular; anterior margin arcuately emarginate, with a broadly rounded median lobe; surface coarsely and rather densely punctate, the punctures irregularly placed and somewhat confluent at the sides and anterior margin. Scutellum round, and broadly depressed at middle. Elytra a little wider than pronotum at base, slightly dilated behind the humeri, strongly sinuate at posterior coxae, then arcuately attenuate to the tips, which are subtruncate, with a small tooth at the sutural angle; surface striato-punctate, the striae not impressed and the punctures near base at least two times as large as the punctures on intervals; intervals flat and coarsely, densely and irregularly punctate. Abdomen beneath coarsely and rather densely punctate, the punctures deep and irregularly placed, and sparsely clothed with long recumbent cinereous hairs; intervals smooth; first segment not grooved at middle; last segment broadly truncate and feebly sinuate at apex, and without lateral teeth. Prosternum rather flat, somewhat declivous in front, densely, coarsely punctate, and rather sparsely clothed with long recumbent hairs; anterior margin feebly sinuate; prosternal process feebly sulcate at the middle, parallel to behind the anterior coxal cavities, then feebly attenuate to the apex, which is very broadly rounded. Femora and tibia similar on all legs, the anterior tibiae without a hook at apex; anterior tarsi not distinctly broader than posterior ones.

Female.—There are but slight external structural differences in the sexes. The females are usually larger and broader, and the last abdominal segment more broadly rounded at apex.

Length, 16–24 mm.; width, 6–9 mm.

This species was described by Herbst (1801) from America. It is a southern species and its distribution extends along the Southern Atlantic and Gulf States, from North Carolina to Texas, and in some parts of the South the larvae becomes quite injurious to the long leaf pine (*Pinus palustris* Miller). The admission of the species in the present paper is based on a single specimen in the Coll. U. S. National Museum, labeled "Havana, Cuba (Roig)," and it is just possible that this specimen emerged from pine lumber shipped from the Southern States.

BUPRESTIS DECORA Fabricius

Buprestis decora FAERICIUS, Syst. Ent., 1775, p. 217.—OLIVIER, Entom., vol. 2, gen. 32, 1790, p. 18, pl. 8, fig. 82.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 578 (separates, p. 154).—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, p. 405 (separates, p. 55).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 161, no. 1630.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 88–89.

Ancyllochira decora CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 145–146, pl. 36, fig. 199.—GUNDLACH, An. Soc. Espan. Hist. Nat., ser. 2, vol. 22, 1894, p. 623.

Male.—Narrow elongate; head and pronotum green, with the reliefs more or less violaceous or cupreous; elytra green, occasionally with distinct median indigo-blue vittae, and the suture and lateral margins always cupreous; beneath green, with a cupreous reflection.

Head feebly convex, with a distinct longitudinal carina on the occiput; surface very coarsely and densely punctate, the punctures confluent and forming longitudinal rugae on the front, and rather densely clothed with long erect cinereous hairs; epistoma broadly but feebly arcuately emarginate in front. Pronotum not quite two times as wide as long, widest at base, and slightly narrower in front than behind; sides feebly obliquely attenuate from base to apical angles; posterior angles acute and slightly projecting; anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; disk sometimes with an obsolete median sulcus or smooth longitudinal area; surface deeply and densely punctate, the punctures very coarse, irregularly placed, and becoming somewhat confluent at the sides. Scutellum oval, somewhat truncate in front. Elytra a little wider than pronotum at base, slightly dilated behind the humeri, rather strongly sinuate at posterior coxae, then arcuately attenuate to the tips, which are rather broadly truncate and bidentate; surface feebly striato-punctate, the striae feebly impressed and becoming obsolete at sides and toward apex, the striae punctures very coarse, intermixed with smaller ones of the same size as those on the intervals; intervals flat and very densely punctate, the punctures coarse, deep, irregularly placed, and becoming confluent at sides and apex. Abdomen beneath coarsely and rather

densely punctate, the punctures variable in size and irregularly placed, rather densely clothed with long, erect, cinereous hairs; intervals obsoletely granulose; first segment not grooved at middle; last segment feebly sinuate at apex, with the lateral teeth obsolete or variable. Prosternum rather flat, rather densely clothed with long cinereous pubescence, and densely, coarsely punctate; anterior margin nearly truncate; prosternal process broadly sulcate at middle, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is rather broadly rounded. Anterior femora strongly swollen at middle; anterior tibiae somewhat flattened at apex, but without a large hook; anterior tarsi much broader than the posterior ones.

Female.—Similar to the male, but differs from it by having the head and underside of body not as densely pubescent, last ventral segment of abdomen more broadly truncate at apex, and the anterior tarsi not distinctly broader than the posterior ones.

Length, 11–18 mm.; width, 4.5–6.5 mm.

Described by Fabricius (1775) from America. This species is found throughout the southeastern part of North America, and its distribution extends from New Jersey to Texas. The adults are very constant in coloration, size, and form, and are not rare in the Southern States; the larvae are found in pine.

Chevrolat (1867) records it from Guadeloupe in the collection of Chevrolat, and from Cuba in the collections of Gundlach and Poey. Fleutiaux and Sallé (1890) record it from Pointe à Pitre, Guadeloupe, around the wharfs (Vitrac), and Gundlach (1891) reports collecting it in the eastern part of Cuba, and also records it from Guadeloupe and North America. Gundlach (1894) also records it from Porto Rico.

The following material has been examined. Coll. Acad. Nat. Sci. Philad.: “Cuba” (Poey Coll. No. 13). Coll. S. C. Bruner: Labeled “Est. Cent. Agri. de Cuba, Feb. 27,” without giving any definite locality. There is also a single example of this species labeled No. 1630 in the Gundlach Museum in Habana, which has not been examined.

BUPRESTIS STRIATA Fabricius

Buprestis striata FABRICIUS, Syst. Ent., 1775, p. 217.—OLIVIER, Entom., vol. 2, gen. 32, 1790, pp. 15–16, pl. 7, fig. 77.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 85–87.

Ancylochira striata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 147–148, pl. 36, fig. 202.

Buprestis obscura CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 125.

Male.—Elongate oval, dark coppery-brown, sometimes with an obsolete aeneous reflection; beneath coppery-brown to bright cupreous and more shining than above.

Head feebly convex, with a distinct longitudinal carina; surface very coarsely and densely punctate, the punctures confluent and forming smooth longitudinal rugae on the front, and sparsely clothed with long erect cinereous hairs; epistoma broadly and rather deeply arcuately emarginate in front. Pronotum nearly two times as wide as long, widest at base, slightly narrower in front than behind; sides variable, feebly arcuately attenuate from base to apical angles, or nearly parallel to apical third, then strongly converging to the apex; posterior angles rather acute; anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; disk obsoletely longitudinally sulcate at middle; surface coarsely and deeply punctate, the punctures irregularly placed, rather widely separated on the disk, but becoming denser and more confluent toward the sides. Scutellum rounded and impressed at middle. Elytra a little wider than pronotum at base, more or less dilated behind the humeri, nearly parallel to apical third, then arcuately attenuate to the tips, which are rounded, truncate, sinuate-truncate, or somewhat bidentate; each elytron with four costae, suture and lateral margin elevated, the costae smooth, rather flat, and sparsely, coarsely, and irregularly punctured, intervals densely and coarsely crenulate. Abdomen beneath rather finely and densely punctate at middle, the punctures becoming coarser and denser toward the sides and on apical segment, and sparsely clothed with long cinereous hairs; first segment feebly flattened at middle; last segment rounded, truncate or obsoletely sinuate at apex. Prosternum feebly convex, dentate, and very coarsely punctate, and sparsely clothed with long, erect cinereous hairs; anterior margin truncate; prosternal process flat, broadly sulcate at middle, smooth at sides, and densely punctured in the depression, parallel to behind anterior coxal cavities, then abruptly attenuate to the apex, which is broadly rounded. Anterior and middle femora feebly swollen at middle; anterior tibiae feebly flattened at apex, but without a long hook; anterior tarsi not distinctly broader than posterior ones.

Female.—Usually more robust and not quite as densely pubescent beneath as in the males.

Length, 13–20 mm.; width, 5.5–8 mm.

This is another North American species which was described by Fabricius (1775) from Pennsylvania. It is rather common and is distributed over the entire eastern North America from Canada to Texas and westward to Missouri, the larvae inhabiting various species of pine. Only one specimen was examined from the West Indies and this was received from the British Museum and simply labeled "Haiti, Saunders 74–18."

BUPRESTIS AURULENTA Linnaeus

Buprestis aurulenta LINNAEUS, Syst. Nat., 12 ed., 1767, p. 661.—OLIVIER, Entom., vol. 2, gen. 32, 1790, pp. 18–19, pl. 9, fig. 98.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405 (separates p. 55).—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 82–84.

Ancylochira radians LECONTE, Proc. Acad. Nat. Sci. Phila., vol. 7, 1854, p. 17.

Ancylochira lauta LECONTE, Proc. Acad. Nat. Sci. Phila., vol. 7, 1854, p. 17.
Ancylochira villosa LECONTE, Proc. Acad. Nat. Sci. Phila., 1873, p. 331.

Buprestis fabulosa CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 119–120.
Buprestis aemula CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 121.

Buprestis tacomaæ CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 121.

Buprestis nupta CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 121–122.

Buprestis venusta CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 122.

Buprestis prospera CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 123.

Buprestis affinis CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 123.

Buprestis adulans CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 123.

Male.—Elongate-suboval, broader than *decora*; head and pronotum green, with the front of head and sides of pronotum more or less cupreous; elytra pale green to ultramarine, the suture and lateral margins usually bright cupreous; beneath bright green or cupreous.

Head feebly convex, with a distinct longitudinal carina; surface densely and coarsely punctate, the punctures confluent and forming longitudinal rugae on the front, and rather sparsely clothed with long recumbent cinereous hairs; epistoma broadly, but not deeply arcuately emarginate in front. Pronotum not quite two times as wide as long, widest near basal third, narrower in front than behind; sides arcuately rounded to middle, then more attenuate to the apical angles; posterior angles nearly rectangular; anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; disk obsoletely longitudinally sulcate at middle; surface coarsely, rather densely, and deeply punctate, the punctures irregularly placed, and becoming denser and more confluent toward the sides, and with a few inconspicuous hairs; intervals obsoletely granulose. Scutellum oval, truncate at base and more or less depressed at middle. Elytra wider than pronotum at base, feebly dilated behind the humeri, sinuate at posterior coxae, then arcuately attenuate to the tips, which are more or less rounded or subtruncate, the sutural angle frequently minutely dentate; each elytron with four discal costae, a short postscutellar costa, suture and lateral margin elevated, the summits of which are smooth and not punctate; intervals very densely and evenly cibrate. Abdomen beneath rather finely strongly, but not closely punctate, and rather densely clothed with long, fine cinereous hairs; intervals obsoletely granulose; first segment not sulcate at middle; last segment truncate at apex. Prosternum feebly convex, the anterior margin somewhat sinuate, and the surface coarsely,

densely punctate; prosternal process sulcate at middle, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is obtusely rounded. Femora similar on all legs; anterior tibiae flattened at apex, but without a hook; anterior tarsi not distinctly broader than posterior ones.

Female.—The sexes show very few external structural differences, the females are usually larger, more robust and the abdomen beneath not quite as densely pubescent.

Length, 13–20 mm.; width, 5–7.5 mm.

Originally described by Linnaeus (1767) from North America. It is one of the most beautiful Buprestids and is very common along the Pacific coast, the distribution extending from British Columbia to southern California and eastward to the Rocky Mountains. It is a very variable species, both in color and size, and having caused considerable synonymy. The larvae live in Douglas fir, western red cedar, and various species of pines.

I have not seen any specimens from the West Indies, but Fleutiaux and Sallé (1890) report it from Guadeloupe. If their identification is correct, it was probably introduced in lumber from the Western States, as the species is not found in the eastern part of the United States.

BUPRESTIS LINEATA Fabricius

Buprestis lineata FABRICIUS, Syst. Ent., 1775, pp. 217–218.—OLIVIER, Entom., vol. 2, gen. 32, 1790, pp. 28–29, pl. 8, fig. 80.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 577–578 (separates pp. 153–154).—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, p. 405 (separate p. 55).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 160–161, no. 1416.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 94–95, pl. 1, figs. 3–4.—STAHL, Fauna de Puerto Rico, 1882, p. 171.

Ancylochira lineata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 143–144, pl. 35, fig. 196.—GUNDLACH, Ann. Soc. Ent. Espan., Hist. Nat., ser. 2, vol. 22, 1894, p. 623.

Male.—Elongate oval; head aeneous, the front more or less fulvous, and usually enclosing two aeneous spots; pronotum aeneous, with the sides brick-red or fulvous; elytra piceous with a bluish or greenish tinge, and each elytron with two more or less connected brick-red or fulvous vittae, which, although rarely wanting, are never broken up into distinct spots; beneath aeneous, somewhat cupreous, the anterior part of prosternum and last ventral segment more or less marked with fulvous.

Head flat, with a feeble longitudinal carina on occiput; surface coarsely and irregularly punctate, and sparsely clothed with inconspicuous hairs; intervals smooth and subopaque; epistoma broadly arcuately emarginate in front. Pronotum about two times as wide

as long, widest at base, distinctly narrower in front than behind; sides strongly, obliquely attenuate from base to apical angles; posterior angles acute and projecting; anterior margin feebly emarginate, with a broadly rounded median lobe; surface coarsely and rather densely punctate, the punctures deep and irregularly placed. Scutellum oval, and somewhat truncate in front. Elytra as wide as pronotum at base, broadly dilated behind the humeri, feebly sinuate at posterior coxae, then arcuately attenuate to the tips, which are subtruncate and strongly dentate; surface striate-punctate, the punctures fine, shallow, and distinctly separated; intervals flat, with a few coarse, irregularly placed punctures. Abdomen beneath rather densely and deeply punctate, the punctures variable in size, irregularly placed, and somewhat confluent at sides and on last segment; intervals finely and densely granulose, and sparsely clothed with inconspicuous hairs; first segment broadly longitudinally grooved at middle; last segment broadly truncate and feebly sinuate at apex, with a small tooth on each side, the small fulvous spot at each anterior angle sometimes quite large and almost united into a fascia, but usually small and almost obsolete. Prosternum rather flat and coarsely and sparsely punctate; anterior margin broadly arcuately emarginate; prosternal process not sulcate at middle, parallel to behind anterior coxal cavities, then obliquely attenuate to the apex, which is rather acutely rounded. Anterior femora strongly swollen at middle; anterior tibiae emarginated, flattened on inner side, and armed with a large, broad hook at the apex; anterior tarsi much broader than posterior ones.

Female.—Similar to the male, but the head is a little more convex, last abdominal segment more rounded at apex, the anterior tarsi more slender, scarcely any wider than the posterior ones, and the anterior tibiae not armed with a hook at the apex.

Length, 12–20 mm.; width, 5–8 mm.

Described by Fabricius (1775) from America. It is distributed over the entire eastern part of North America, from Nova Scotia to Texas and westward to Indiana, the larvae living in various species of pine.

Chevrolat (1867) records it from Guadeloupe in the collection of Chevrolat, and from the central and eastern part of Cuba in the collection of Gundlach and Poey. Fleutiaux and Sallé (1890) record it from Guadeloupe, and Gundlach (1891) reports taking it at "Cienaga de Zapata" and Santiago de Cuba, and also records it from Guadeloupe. Gundlach (1894) and Stahl (1882) both record it from Porto Rico.

I have examined two specimens, one kindly loaned by the British Museum and labeled "Guadeloupe (Lhermanier) Coll. Chevrolat,"

and which is probably the specimen referred to by Chevrolat, Fleutiaux, and Sallé, the other in the collection of S. C. Bruner, labeled Camaguey, Cuba (J. Acuna).

The species is not represented in the Poey collection in Philadelphia, but there are two specimens labeled No. 1416 in the Gundlach Museum in Habana, which have not been examined.

BUPRESTIS FASCIATA Fabricius

Buprestis fasciata FABRICIUS, Mant. Ins., vol. 1, 1787, p. 177.—OLIVIER, Entom., vol. 2, gen. 32, 1790, p. 21, pl. 9, fig. 92.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, p. 405 (separates, p. 55).—

NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26, 1918, pp. 102–103.

Buprestis sexmaculata HERBST, Nat. Syst. Ins., Käfer, vol. 9, 1801, pp. 163–164, pl. 148, fig. 5.

Ancylocheira (Buprestis) lherminieri CHEVROLAT, Silbermann's Rev. Ent., vol. 5, 1838, pp. 68–69.—FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, p. 405 (separate, p. 55).

Aneylochira sexplagiata LECONTE, Trans. Amer. Philos. Soc. Phila., n. ser., vol. 11, 1859, pp. 205–206.

Buprestis fulgens CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, pp. 106–107.

Buprestis fortunata CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 107.

Buprestis saturata CASEY, Proc. Wash. Acad. Sci., vol. 11, 1909, p. 114.

Male.—Elongate oval, bright green to dark blue; elytra each with a conspicuous irregular pale fascia at apical third, a small oblique subapical spot, and with a large oblong or oval yellow discal spot behind the scutellum, but not quite attaining the base; beneath bright green, cupreous, or violaceous.

Head feebly convex, with an obsolete longitudinal carina on occiput; surface densely, coarsely, and confluent punctate and clothed with a few long inconspicuous hairs; epistoma rather deeply arcuately emarginate in front. Pronotum nearly two times as wide as long, widest near base, slightly narrower in front than behind; sides somewhat variable, evenly converging, and distinctly arcuate from a short and very feeble, although abrupt, basal swelling to the apex, and sometimes incurved at the base; posterior angles rather acute; anterior margin arcuately emarginate, with a broadly rounded median lobe; disk more or less impressed along the middle, and the ante-scutellar fovea distinct; surface deeply and rather densely punctate, the punctures coarse and irregularly placed. Scutellum small, subquadrate, truncate in front, but somewhat variable. Elytra slightly wider than pronotum at base, feebly expanded behind humeri, nearly parallel to apical third, then arcuately attenuate to the tips, which are more or less bidentate; surface strongly striate, the striae distinct, evenly, and rather closely punctate; intervals feebly convex, obsoletely, and remotely punctate. Abdomen beneath rather finely and densely punctate, the punctures becoming coarser and denser toward the sides; intervals

obsoletely granulose; first segment feebly impressed along middle; last segment broadly, arcuately emarginate at apex. Prosternum feebly convex, densely, coarsely punctate, and rather sparsely clothed with long, erect cinereous hairs; anterior margin nearly truncate; prosternal process feebly convex, not sulcate at middle, sides parallel to behind anterior coxal cavities, then obliquely attenuate to the apex, which is rather broadly rounded, anterior femora feebly swollen at middle; anterior tibiae somewhat flattened at apex, but without a large hook; anterior tarsi not broader than the posterior ones.

Female.—Usually more robust than the male, each elytron with an irregular yellow fascia at apical third, a small subapical spot, and occasionally with a small yellow discal spot at middle, prosternum sparsely punctured and not conspicuously pubescent, abdomen with the first segment more convex, and the last segment more sinuate at apex.

Length, 11–18 mm.; width, 4.5–7 mm.

This species was originally described by Fabricius (1787) from North America, and Chevrolat (1838) described the same species from Pointe à Pitre, Guadeloupe Island, under the name of *lherminieri*. Fleutiaux and Sallé (1890) record both *fasciata* and *lherminieri* from Guadeloupe.

The species although having a wide distribution, is usually not taken in numbers. It is found from Canada to Georgia, and westward to Wisconsin, and seems to be confined to the northeastern part of the country. The species varies considerably in elytral markings and coloration, which has caused much confusion and synonymy. No specimens have been examined from the West Indies and the above description was made from specimens from the United States.

BUPRESTIS MACULATIVENTRIS SAY

Buprestis maculiventris SAY, Long's Second Expedition, vol. 2, 1824, p. 272–273.—NICOLAY and WEISS, Journ. N. Y. Ent. Soc., vol. 26; 1918, pp. 90–91:

Buprestis maculiventris GEMMINGER and HAROLD, Catal. Coleopt., vol. 5, 1869, p. 1378.

Ancylochira sexnotata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 129–130, pl. 32, fig. 178.

Ancylochira maura CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, p. 131, pl. 33, fig. 181 (Not *maura* Olivier).

Male.—Elongate, slightly oval; head aeneous or cupreous, and more or less marked with yellow on the front; pronotum and elytra aeneous, obscure viridis or subcupreous, the former with the apical angles yellow, shining; beneath aeneous to cupreous, sometimes with a purplish tinge, and the last four ventral segments of the abdomen

having on each side a reddish-yellow spot, those on the last segment being the largest and most irregular.

Head feebly convex with a distinct longitudinal carina, surface coarsely and rather densely punctate, and sparsely clothed with a few short inconspicuous hairs; epistoma broadly, but not very deeply arcuately emarginate in front. Pronotum nearly two times as wide as long, widest at base or basal fourth, narrower in front than behind; sides arcuately expanded at basal half, then obliquely attenuate to the apical angles; posterior angles rather obtuse; anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; disk with large sublateral smooth spaces, and a distant smooth median line, which is finely striate at base; surface coarsely, but not densely punctate, the punctures irregularly placed and more confluent toward the sides. Scutellum rounded, transversely oval or subquadrate. Elytra slightly wider than pronotum at base, expanded behind the humeri, nearly parallel to apical third, then arcuately attenuate to the tips, which are rounded or truncate, and finely irregularly dentate, the outer angle obtuse, and never dentiform; surface feebly striato-punctate, the striae finely and rather closely punctured; intervals coarsely, sparsely and irregularly punctate, those between striae 2-3, 4-5, and 8-9 elevated, and forming obtuse ridges. Abdomen beneath coarsely and rather densely punctate, and sparsely clothed with short inconspicuous hairs, first segment broadly, longitudinally sulcate at middle; last segment sinuate, truncate or rounded at apex. Prosternum nearly flat, coarsely and irregularly punctate, and nearly glabrous; anterior margin feebly arcuately emarginate; prosternal process feebly convex, not sulcate at middle, gradually attenuate to the apex which is rather acutely rounded. Anterior femora strongly swollen at middle; anterior tibiae emarginate, flattened on inner side and armed with a large broad hook at the apex; anterior tarsi distinctly broader than the posterior ones.

Female.—Similar to the male, but the anterior tarsi not distinctly broader than the posterior ones, and the anterior tibiae not armed with a hook at the apex.

Lenth, 12-20 mm.; width, 4.5-7.5 mm.

Originally described by Say (1824) from the United States. This species seems to be confined to the northeastern part of North America and its distribution extends from Newfoundland to Pennsylvania and westward to Minnesota. The larvae live in various coniferous trees and the adults have been found emerging from pine timber, and have probably been introduced into Haiti in such produce. The following material of this species has been examined. Coll. British Mus.; two specimens labelled "Haiti, compared with type, 6-notata Castelnau and Gory, Saunders, 74-18."

Castelnau and Gory (1838) give a description and figure of a species from Santo Domingo, which they supposed was the species described by Olivier as *Buprestis maura*. A translation of their description is as follows:

Length 9 lines, width $3\frac{1}{4}$ lines. Coppery bronze and very finely granulose. Head with several yellow spots. Sides of pronotum of the same color and with two small smooth spaces and a small impressed fovea behind. Elytra feebly obliquely truncate at tips, the surface striate and the intervals finely punctured. Abdomen with a yellow spot on each side and a transverse band on the last segment. Santo Domingo.

It is certainly not the same as the species described by Olivier, of which the following is a translation:

Size of *Buprestis austriaca*. Antennae black and serrate. Above entirely violet-black. Thorax with an impressed longitudinal groove. Scutellum small and rounded. Elytra striate and bidentate at apex. Found in South America.

The specimens from Haiti which were loaned by the British Museum are the same as the specimens of *maculativentria* Say from the United States, and also agree very well with the figure and description given by Castelnau and Gory for *maura*, but since this is not the species described by Olivier under that name I have placed *maura* Castelnau and Gory as a synonym of *maculativentris* Say. The true *Buprestis maura* described by Olivier is probably confined to South America.

BUPRESTIS CUBENSIS, new species

Male.—Form narrowly elongate; head piceous, with a strong purplish or bluish tinge, the entire front reddish-yellow, with two irregular central spots, and a small spot at base of each antennae cupreous or purplish black; pronotum and scutellum piceous, with a strong greenish or purplish tinge, the former with the anterior margin narrowly pale yellow, and the sides more broadly margined with reddish-yellow; elytra fulvous, becoming more reddish-yellow laterally, and with the suture, lateral margins and bottoms of striae purplish-cupreous; beneath brownish-cupreous, with the sternum, median parts of abdomen, and under side of femora more or less marked with a reddish-yellow color.

Head feebly convex, with a very narrow obsolete carina on occiput; surface irregularly, coarsely, but not deeply punctate, the punctures irregular in size and somewhat confluent on the occiput; intervals smooth and nearly glabrous; eyes feebly converging above, feebly convex, oval, and about two times as long as wide; epistoma broadly but not deeply arcuately emarginate in front. Pronotum nearly two times as wide as long, widest at basal fourth, distinctly narrower in front than behind; sides regularly arcuately expanded on basal half,

then obliquely attenuate to the apical angles; posterior angles nearly rectangular; anterior margin arcuately emarginate, with a broadly rounded median lobe; base rather strongly bisinuate; surface coarsely, deeply, and irregularly punctate, the punctures more widely and irregularly separated on the disk, but becoming more confluent toward the sides. Scutellum subquadrate, truncate in front, and rounded behind. Elytra slightly wider than pronotum at base, strongly expanded behind the humeri, feebly obliquely attenuate to apical third, then arcuately attenuate to the tips, which are transversely truncate, feebly sinuate and bidentate; surface striato-punctate, the striae not deeply impressed and the punctures fine and rather closely placed; intervals flat, not alternately elevated, and with a few shallow, coarse, and irregularly placed punctures. Abdomen beneath coarsely, sparsely, and irregularly punctate, and sparsely clothed with short recumbent cinereous hairs; intervals finely and densely granulose; first segment broadly obsoletely sulcate at middle; last segment broadly truncate and feebly sinuate at apex. Prosternum feebly convex, shining, and very sparsely, coarsely punctate; anterior margin straight and narrowly declivous; prosternal process feebly convex, not sulcate at middle, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is rather acutely rounded. Anterior femora slightly more swollen at middle than the middle or posterior ones; anterior tibiae emarginate, flattened on the inner side, and armed with a large broad hook at apex; anterior tarsi distinctly broader than posterior ones.

Female.—Unknown.

Length, 14.5 mm.; width, 5.5 mm.

Type locality.—Vinales, Cuba.

Type and paratype.—Amer. Mus. Nat. Hist.

Paratype.—Cat. No. 26813, U.S.N.M.

This species is described from three specimens received from the American Museum of Natural History, which were collected by C. W. Leng at the type locality between September 16 and 22, 1913, the vegetation consisting of scattered pines with a few oaks, etc.

BUPRESTIS DECIPIENS, new species

Female.—Form broadly elongate-oval; above uniformly piceous, with a strong purplish or cupreous tinge, head with a few small yellow spots on the front near epistoma, and the sides of the pronotum obsoletely reddish-brown; beneath brownish-cupreous, with the sternal regions reddish-brown.

Head feebly convex, with a very narrow obsolete carina on the occiput; surface somewhat uneven, coarsely and rather deeply punctate, the punctures irregularly placed and confluent in some places;

intervals smooth and nearly glabrous; eyes feebly converging above, feebly convex, oblong, and about two times as long as wide; epistoma broadly but not deeply arcuately emarginate in front. Pronotum two times as wide as long, widest at basal fourth, distinctly narrower in front than behind; sides regularly arcuately expanded on basal half, then obliquely attenuate to apical angles; posterior angles nearly rectangular; anterior margin feebly arcuately emarginate, with a broadly rounded median lobe; base rather strongly bisinuate; disk with a broad obsolete longitudinal depression in front of scutellum, and a deep irregular one on each side near lateral margin; surface coarsely and deeply punctate, the punctures irregularly placed, more remotely separated on the disk and becoming more or less confluent in some areas. Scutellum subquadrate, truncate in front, and rounded behind. Elytra slightly wider than pronotum at base, rather strongly expanded behind the humeri, obliquely attenuate to apical third, then strongly arcuately attenuate to the tips, which are truncate, sinuate, and more or less bidentate; surface striato-punctate, the striae not deeply impressed, and the punctures fine and rather closely placed; intervals feebly convex, not alternately elevated, and with a few coarse irregularly placed punctures. Abdomen beneath coarsely, sparsely and irregularly punctate, and sparsely clothed with short recumbent cinereous hairs; intervals finely and densely granulose; first segment broadly flattened at middle; last segment rounded and more or less sinuate at apex. Prosternum feebly convex, shining, coarsely and very sparsely punctate; anterior margin feebly arcuately emarginate and narrowly declivous; prosternal process strongly convex, not sulcate at middle, parallel to behind the anterior coxal cavities, then obliquely attenuate to the apex, which is acutely rounded. Anterior femora slightly more swollen at middle than middle or posterior ones; anterior tibiae feebly flattened on inner side, but not armed with a broad hook at apex; anterior tarsi not distinctly broader than posterior ones.

Male.—Unknown.

Length, 19 mm.; width, 7.5 mm.

Type locality.—Vinales, Cuba.

Other localities.—Nueva Gerona, Isle of Pines.

Type.—Amer. Mus. Nat. Hist. *Paratype*.—Carnegie Museum.

Paratype.—Cat. No. 26814, U.S.N.M. (fragments).

This species is described from three specimens, one of which is in fragments. Two of these were received from the American Museum of Natural History and were collected at the type locality by C. W. Leng, between September 16 and 22, 1913, the vegetation consisting of scattered pines, with a few oaks, etc. The other specimen was received from the Carnegie Museum and was collected at Nueva Gerona, Isle of Pines, by G. Link, during March, 1913.

It is just possible that this may be the female of *cubensis* Fisher. Both of these species were collected in the same locality by Mr. Leng, and they resemble each other in a number of respects, but the coloration is entirely different. On account of these differences and without additional notes on their habits, it seems advisable to describe them as two distinct species, but should they prove to be sexes of the same species, it would show an extreme case of dichromatism, which would be unusual in this genus.

Genus MIXOCHLORUS Waterhouse

Mixochlorus WATERHOUSE, Trans. Ent. Soc. London, 1887, p. 177.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 60–61.

Head feebly convex; epistoma wide, not narrowed by the antennal cavities and bisinuate in front; antennal cavities small, round, situated under a distinct carina at some distance from the eyes. Antennae 11-jointed, rather short and slender; first joint elongate, clavate and abruptly arcuate near base; second oblong, about two-thirds as long as third; third elongate, cylindrical and not quite as robust as the second; the following joints gradually becoming shorter toward the terminal joint, triangular (except the last joint, which is transversely oval), strongly serrate on the inner side, the serrate joints having the poriferous pores in a cavity on the lower anterior margin of the joints. Eyes large, broadly oval, strongly convex, and parallel on the inner margin. Pronotum a little wider than long, wider in front than behind, disk strongly convex, with three longitudinal impressions; base truncate or feebly bisinuate. Scutellum small, and touching the pronotum. Elytra elongate, truncate at base, and gradually acuminate posteriorly, punctato-striate, and longitudinally impressed at the suture. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former elongate. Metasternum feebly emarginate in front. Prosternum truncate in front, and not grooved at middle. Posterior coxae scarcely dilated internally, the anterior margin sinuate and the posterior margin nearly straight. Legs rather robust; femora feebly swollen at middle; tibiae slender, and cylindrical; tarsi short, the first joint of the posterior pair about as long as the following two joints united; tarsal claws angularly dilated at base. Body agriliform.

This genus was erected by Waterhouse for a new species *Mixochlorus suturalis* from Honduras, and later he added *lateralis* from Mexico.²⁴ He states that it is clearly allied to *Agaeocera* and *Pelecopselaphus*. The genus was unknown to Kerremans and in²⁵ he has placed it in the tribe Chalcophorini. If we follow the Kerremans

²⁴ Biol. Centr.-Amer. Coleopt., vol. 3, pt. 1, 1889, p. 168.

²⁵ Wytsman's Gen. Insectorum, fasc. 12, pt. 2, 1903, pp. 60–61.

classification, this genus should not be included in the tribe Chalcophorini as the antennal pores are placed on the lower anterior margin of the joints, but should be placed in the tribe Buprestini near the genus *Peronaemis* Waterhouse, to which it is closely allied.

MIXOCHLORUS ELEGANS, new species

Agriliform, broadly rounded in front and strongly acuminate behind, shining and nearly glabrous; head green, with a large triangular reddish-cupreous spot on the occiput, the spot divided longitudinally by a narrow green line; pronotum and elytra reddish-cupreous, the former with the lateral margins, sides of the anterior margin, and the median impressions aureo-viridis, the latter with the base, sutural and lateral margins aureo-viridis, the green area along the suture on each elytron rather wide from the base to basal third, then strongly constricted to behind the middle, where it is expanded into a wide triangular area, which extends internally to about the middle of the elytron; beneath viridis, with a feeble cupreous reflection; tibiae and tarsi aeneous.

Head feebly, evenly convex, nearly flat between the eyes, with a short longitudinal carina on occiput, and without any distinct impressions; surface glabrous, densely, and deeply punctate, the punctures large and becoming confluent on the front; intervals smooth on the front, becoming obsoletely granulose on the occiput; epistoma wide between the antennal cavities (about three times as wide as the cavities), rather deeply arcuately emarginate in front, and with an obtuse tooth on each side of the emargination. Pronotum strongly convex, slightly wider than long, slightly wider in front than behind, and widest near apical angles; sides feebly obliquely attenuate from near apical angles to the posterior angles, which are rather acute; anterior margin with a broadly rounded median lobe; base feebly bisinuate; surface with three longitudinal impressions, the median one broad and extending from the base to the front margin, more deeply impressed on the basal half, and a lateral one on each side about midway between the lateral margin and median depression, these impressions not as deeply impressed as the median one at base, and not reaching to the front margin; the surface is also regularly, densely, and coarsely punctate, the punctures deep, with well-defined sides, and distinctly separated, the intervals finely and densely granulose. Scutellum square and finely granulose. Elytra as wide as pronotum at base, widest just a little behind the humeral angles (when viewed laterally is strongly, arcuately expanded and declivous near humeral angles), nearly parallel and feebly sinuate to behind the middle, then arcuately attenuate to the tips, which are acute, with the lateral margins finely dentate near the apex; humeri

rather prominent; surface broadly, transversely impressed along base, and with an obsolete longitudinal impression along suture behind the triangular green area, irregularly punctato-striate, the punctures deep and coarse, and the striae somewhat confused; intervals densely punctate and finely rugose, the punctures irregularly placed, equal in size to those in the striae and somewhat confused, except on the disk. Abdomen beneath rather strongly convex, rather densely punctate, the punctures shallow, well separated, and becoming finer toward the apical segment, and from each puncture arises a short recumbent cinereous hair; intervals finely and densely granulose; last segment strongly attenuate, truncate at apex, with the preapical margin broadly, arcuately emarginate. Prosternum very coarsely punctate; anterior margin truncate and declivous; prosternal process nearly flat, with the apex rather broadly rounded.

Length, 8 mm.; width, 2.25 mm.

Type locality.—Sanchez, Dominican Republic.

Type.—American Museum of Natural History.

This beautiful insect is described from a single specimen loaned to me by the American Museum of Natural History, and collected by F. E. Watson along a creek at the foot of a mountain about three-fourths of a mile north of Sanchez, Dominican Republic, between May 28 and 31, 1915.

At first sight this insect might be mistaken for a species of *Agryllus* or *Engyaulus*, but can be distinguished from these genera by the characters given in the key. It is very closely allied to *Mixochlorus suturalis*, described from Honduras by Waterhouse, but can be separated from that species by having the pronotum wider in front than behind, and the green sutural vitta irregular, expanded behind scutellum and middle of elytron, and not straight as in *suturalis*.

Genus PERONAEMIS Waterhouse

Peronaemis WATERHOUSE, Trans. Ent. Soc. London, 1887, p. 178.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 145-146.

Head feebly convex; epistoma wide, not narrowed by the antennal cavities and nearly truncate in front; antennal cavities rather large, triangular, rounded behind and prolonged into a groove in front, situated under an obsolete carina at some distance from the eyes. Antennae 11-jointed, rather short and slender; first joint elongate, clavate and abruptly arcuate near base; second oblong, about two-thirds as long as the third; third elongate, cylindrical, feebly clavate at apex, and not quite as robust as the second, the following joints gradually becoming shorter toward the apical joint, triangular (except the last joint, which is nearly round), strongly serrate on the inner side, the serrate joints having the poriferous pores in a cavity on the lower anterior margin of the joints. Eyes large, oviform,

strongly convex, and nearly parallel on the inner margin. Pronotum a little wider than long, narrower in front than behind, strongly convex anteriorly, with three deep ovate impressions at the base; lateral margins not visible anteriorly from above. Scutellum transverse and trapezoidal. Elytra elongate, sinuate at base and strongly acuminate toward the apex. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former elongate. Metasternum truncate in front. Prosternum truncate in front and not grooved at middle. First and second segments of abdomen distinctly separated by a suture. Posterior coxae feebly dilated internally, the anterior and posterior margins arcuately emarginate. Legs rather robust; femora feebly swollen at middle; tibiae slender, cylindrical and straight; tarsi short, the first joint of posterior pair scarcely as long as the second and third united; tarsal claws broadly angularly dilated at base. Body agriliform.

This is a monobasic genus and was erected for *thoracicus* Waterhouse.

It is closely allied to *Mixochlorus* but differs from it in having the pronotum narrower in front than behind, more strongly convex anteriorly, and the three basal impressions deeper and only reaching to the middle; scutellum transverse and the elytral intervals more costiform.

PERONAEMIS THORACICUS Waterhouse

Peronacmis thoracicus WATERHOUSE, Trans. Ent. Soc. London, 1887, pp. 178–179, figure.

Broadly agriliform, broadly rounded in front and strongly acuminate behind, narrower behind than in front, shining and glabrous; head green, the entire median part reddish-cupreous; pronotum reddish-cupreous, with the base brownish-aeneous and the lateral impressions partially greenish; scutellum green; elytra aeneous and ornated with irregular brownish areas; elytral epipleura bluish-green; beneath bluish-green, with aeneous and purplish reflections, and the sides of prosternum reddish-cupreous.

Head feebly and evenly convex, nearly flat between the eyes and with a short, obsolete, longitudinal carina on the occiput, and without any distinct impressions; surface densely and deeply punctate, the punctures coarse, irregularly placed, and becoming somewhat confluent at the sides; intervals finely and densely granulose; epistoma wide between the antennal cavities (about four times as wide as the cavities), feebly, broadly arcuately emarginate in front with the sides strongly angulated. Pronotum strongly convex anteriorly, one and one-third times as wide as long, slightly wider at base than at apex, and widest at base; sides broadly, arcuately rounded from apical angles to basal fourth, then obliquely expanded to the posterior

angles, which are slightly diverging and acute; anterior margin with a broadly rounded median lobe; base nearly truncate to middle of elytron, with a broadly rounded median lobe; when viewed laterally the lateral margin runs obliquely downward and disappears anteriorly; surface with three large basal impressions extending to the middle, the median one is rather broader than the others, densely and coarsely punctate, the punctures deep, rather irregularly placed and becoming more widely separated in the impressions; intervals nearly smooth except in the impressions where they are densely, finely granulose. Scutellum about two times as wide as long; sides obliquely narrowed anteriorly; posterior margin broadly rounded; surface finely and densely granulose. Elytra slightly wider than pronotum at base; sides strongly angulated a little behind the humeral angles, nearly parallel to apical third, where they are broadly rounded, then strongly acuminate to the tips, which are acute, with a tooth at the apex of each elytron, and the lateral margins finely and irregularly denticulate; humeral angles nearly rectangular, surface broadly impressed at base, there is a quadrangular spot occupying the scutellar region, and a second square spot along lateral margin at middle of the elytron, but not extending to the suture, of a brownish color, more shining, and slightly more elevated than the rest of the elytra, the humeral callosity and the margin near the base are also of the same brownish color, the surface is also punctate-striate, the punctures coarse at the base but becoming finer toward the apex; intervals slightly costiform, with a few coarse, irregularly placed punctures, and becoming densely granulose and somewhat rugose posteriorly. Abdomen beneath strongly convex, rather densely punctate, the punctures large, well separated, and becoming finer toward the apex, and from each puncture arises a rather long, recumbent hair; intervals finely and densely granulose; last segment strongly attenuate, and rather deeply arcuately emarginate at apex. Prosternum very coarsely punctate, the punctures deep and well separated; anterior margin truncate and declivous; prosternal process nearly flat, sides parallel to behind coxae, then obliquely attenuate to the apex, which is broadly rounded. Posterior coxae with the surface strongly concave, sparsely punctate, the punctures very coarse internally but becoming finer in the concavities.

Length, 10.5 mm.; width, 3.5 mm.

This species was described from Jamaica by Waterhouse.

Through the kindness of the British Museum I have been able to examine a single specimen from their collection labeled "Jamaica" and from which the above description was made. Superficially this species resembles specimens of the genus *Agrylus*, but the lateral branches of the mesosternum are distinct and the species is remarkable in having three deep basal depressions on the pronotum.

Genus AGLAOSTOLA Thomson

Aglaostola SAUNDERS, Catal. Bupr., 1871, p. 47.—LAFERTÉ MSS.—THOMSON, Typ. Bupr., 1878, p. 42.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 155–156.

Head flat, front rugose; epistoma narrowly and deeply emarginate in front, the emargination forming a semicircle, and the sides produced into an acute lobe, not narrowed by the antennal cavities, which are large, somewhat triangular, and situated under a distinct carina at some distance from the inner margin of the eyes. Antennae 11-jointed, rather long and slender; first joint clavate, elongate and abruptly arcuate near base; second obconic, about one-half as long as the third; third elongate, slightly flattened, and about three-fourths as long as the first; fourth and fifth elongate, about equal in length to the third and feebly enlarged at apex; the following joints gradually becoming shorter toward the terminal joint, triangular, strongly enlarged at apex (except the last joint, which is oval), and strongly dentate on the inner side; joints four to eleven armed with a large subterminal poriferous fovea. Eyes elliptical, oblique, and nearer to each other on the vertex than at the front. Pronotum wider than long, trapeziform, disk moderately convex; sides obliquely narrowed anteriorly; anterior margin sinuate, with a median lobe; base nearly truncate. Scutellum subpentagonal, a little wider than long, and attenuate posteriorly. Elytra elongate, truncate at base, without distinct basal depressions and entirely covering the pygidium; sides nearly parallel in front, then strongly acuminate to the tips, which are strongly bidentate, the lateral margins unarmed. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former elongate and curved. Metasternum lobed in front. Prosternum with the anterior margin truncate at middle, and strongly lobed on each side; prosternal process wide, arcuately emarginate between the anterior coxae, and acuminate at apex. Posterior coxae distinctly dilated internally; anterior margin straight; posterior margin oblique. Legs rather robust; anterior and middle femora strongly swollen at middle; tibiae slender and cylindrical; tarsi rather long; first joint of posterior pair about as long as the following two joints united; sides of third joint prolonged beyond the fourth; tarsal claws with a feeble tooth at base.

This is a monobasic genus, and the name was first used by Saunders (1871) for *tereticollis* Pallas without giving any description. Thomson (1878) described the genus and uses the same name.

AGLAOSTOLA TERETICOLLIS (Pallas)

Buprestis tereticollis PALLAS, Icon. Ins., 1782, pp. 75-76, pl. D, fig. 18.

Buprestis corusca FABRICIUS, Mant. Ins., vol. 1, 1787, p. 176.

Female.—Elongate, navicular, attenuate in front, more acuminate posteriorly, and narrower behind than in front, glabrous, shining, golden-green above, with a bluish reflection in certain lights, and each elytron ornated with an irregular cupreous spot along lateral margin near apex; beneath golden-green, with a bluish reflection, and the abdomen cupreous, especially toward the sides.

Head feebly convex, front flat, triangular, about three-fifths as wide at vertex as at base, with a narrow longitudinal groove on the occiput, and a broad transverse impression behind the epistoma; surface glabrous, with numerous large, deep, irregularly placed punctures, and the intervals more finely, obsoletely and irregularly punctate. Pronotum regularly convex, with a round deep fovea in front of scutellum, a triangular one on each side along base at middle of elytron, and a narrow transverse groove on each side along the anterior margin, the groove not extending to the middle, one and one-half times as wide as long, distinctly narrower in front than behind, widest at base; sides obliquely attenuate from base to anterior margin; anterior margin with the median lobe rather obsolete, but broadly rounded; posterior angles nearly rectangular; surface with numerous large, deep, irregularly placed punctures, the intervals finely, obsoletely, and rather densely punctate. Scutellum smooth. Elytra wider than pronotum at base, widest just behind humeral angles, which are broadly rounded; sides broadly rounded behind humeral angles and nearly parallel to just behind the middle, then arcuately attenuate to the tips, which are feebly expanded, strongly emarginate and produced into two strong teeth, one at the suture and the other at the lateral margin, the teeth about equal in length; surface nearly smooth, with a few obsolete costae at apex, sparsely punctate, the punctures rather large, irregularly placed and tending to form longitudinal rows in some places, the intervals very finely irregularly punctate, and obsoletely rugose. Abdomen beneath strongly convex, sparsely punctate, the punctures rather large, irregularly placed, and from each arises an obsolete, erect hair; intervals finely and densely granulose; first segment broadly but not deeply grooved for its entire length; last segment deeply arcuately emarginate at apex. Prosternum convex without a median groove; apex rather acute; surface with numerous large and very fine punctures intermixed.

Length, 19-22 mm.; width, 6.5-7 mm.

Male.—Similar to the female but differ from it in being smaller and having the last abdominal segment nearly truncate at apex, with the preapical margin feebly, arcuately emarginate.

Length, 13 mm.; width, 4.25 mm.

Pallas (1782) in his original description gives Brazil as the type locality for this species which is probably an error. Fabricius (1787) described the same species from Jamaica under the name *corusca*. This species, as far as known, is confined to Jamaica, and specimens have been examined from the following collections: Coll. W. J. Holland: Three specimens, from Jamaica (F. Klages). Coll. British Mus.: One specimen, labeled "Parry, compared with type *corusca* Fabr. Coll. Banks, Saunders 74-18"; another labeled "Jamaica (Tarnier)," determined by Kerremans as *tereticollis* Pallas; and a third specimen simply labeled "Jamaica." Coll. U. S. Nat. Mus.: One specimen, Jamaica (F. Klages) (donated by Dr. W. J. Holland).

Genus ANTHAXIA Eschscholtz

Anthaxia ESCHSCHOLZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint, p. 8).—

SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 297-298, pl. 12,

fig. 22.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1839, pp. 1-2, pl. 1.—

LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 49-50.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 170-177.

Cratomerus SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 295-296, pl. 12, fig. 21.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1839, p. 1, pl. 1.

Head vertical, front flat or concave, sometimes impressed along epistoma and not narrowed by the insertion of the antennae; epistoma short, wide, and sinuate or emarginate in front; antennal cavities small, round, not concealed by a carina, and situated nearer the epistoma than the eyes. Maxillary palpi three jointed; first joint elongate and enlarged at apex; second short, obconical; the third cylindrical or suboval. Antennae 11-jointed, short and slender, except the males of some *Cratomerus*, which have it rather robust; first joint elongate and clavate; second and third short, obconical, the third usually longer than second; the following joints triangular, dentate on the inner side, and with terminal poriferous pores. Eyes large, oval, subparallel or feebly converging on the vertex, and sinuate on inner margin. Pronotum transverse, quadrangular, rarely as long as wide; sides arcuately rounded; anterior margin bisinuate or emarginate, with a more or less distinct median lobe; base truncate or obsoletely rounded. Scutellum small, triangular, or ogival. Elytra truncate at base, apex rounded, and the lateral margin dentate or unarmed. Mesosternum divided. Metasternum truncate in front and with a groove at the middle, the epimera visible at the side. Posterior coxae moderately dilated internally, the anterior side sinuate or horizontal, the posterior side oblique and a little arcuate. Legs more or less robust, often slender; femora fusiform, rather thick, the posterior pair sometimes swollen and arcuate; tibiae slender and cylindrical; tarsi with first joint elongate, second shorter, third and

fourth enlarged and cordiform. Body oval, rarely elongate, and feebly convex above.

The genus *Cratomerus* was erected by Solier for the species having the antennae robust and the intermediate joints enlarged, and the posterior femora swollen and arcuate in the males, but these characters are not only variable in the species, but also vary among individuals of the same species.

This genus has a very wide distribution, the species being found in all parts of the world, with the exception of Australia. The species are quite variable in color, difficult to separate and have caused considerable synonymy. Previously only one species has been recorded from the West Indies.

ANTHAXIA BIFOVEATA, new species

Form oblong, strongly depressed, broadly rounded in front and more attenuate behind; head violaceous; pronotum and scutellum piceous, with a strong bluish tinge; elytra bluish-green; beneath cyaneous, with the prosternum and middle of abdomen more greenish.

Head feebly convex, with the front rectangular and the sides feebly sinuate and parallel; front broadly and rather deeply depressed; surface glabrous, coarsely and rather densely punctate, the punctures very shallow, irregularly placed, and coarsely and densely granulose; eyes large, moderately convex, and parallel; epistoma narrow, feebly triangularly, but not deeply emarginate in front; antennae short, the serrate joints wider than long. Pronotum strongly transverse, one and three-fifths times as wide as long, widest at middle, slightly narrower in front than behind; sides regularly and rather broadly rounded to near posterior angles, where they are slightly sinuate; posterior angles acutely angulated; anterior margin deeply arcuately emarginate, with an obsoletely rounded median lobe; base obsoletely rounded; disk moderately convex, with a large, very deep impression on each side at the posterior angles, each impression covering about one-third of the basal region, extending to the base and lateral margins, and connected to each other at the basal third by a transverse shallow, broadly concave impression; surface coarsely, densely granulose, and obsoletely reticulate, the reticulation irregular and somewhat oval on the median parts, but becoming longitudinally strigose at the sides. Scutellum ogival, surface densely, coarsely granulose. Elytra as wide as pronotum at middle; sides obtusely angulated at humeral angles, nearly parallel to apical fourth, then strongly arcuately attenuate to the tips, which are separately narrowly rounded; lateral margins obsoletely serrate posteriorly; humeri prominent; base truncate; disk with a rather broad basal impression, deeper at the humeri and becoming more

obsolete toward the scutellum, there is also a narrow impression along the lateral margin extending from the humeral angles to apex, and a similar one along the suture near apex, causing the suture to be slightly elevated posteriorly; surface densely and coarsely granulose, becoming somewhat rugose in basal region, and with irregular rows of coarse, irregularly placed punctures, which are somewhat obsolete posteriorly, but becoming coarser and very deep at apex. Abdomen beneath coarsely and rather densely reticulate, and glabrous; last segment acutely rounded at apex, strongly declivous, and the surface broadly and deeply concave. Prosternum strongly convex, broadly arcuately emarginate in front, with the surface strongly reticulate and densely granulose; prosternal process flat, sides parallel and only feebly expanded behind the anterior coxal cavities; apex truncate, with an obtuse tooth at the middle. Tarsal claws simple.

Length, 5.25 mm.; width, 2 mm.

Type locality.—Cuba.

Type.—Amer. Mus. Nat. Hist.

This species is described from a single specimen, collected by Jos. H. Pazos in Cuba, without giving any definite locality, and which was loaned for study by the American Museum of Natural History. This specimen has the right elytron discolored.

At first this was identified as *subsinuata* Gory, but after carefully reading the redescription from the type given by Chevrolat it was found to differ from it in a number of details. It does not exactly agree with the description given by Gory, which is very short and incomplete, and his figure shows a more elongate species, more attenuate posteriorly, and the pronotum much narrower in front than behind. Chevrolat gives the color as plumbeus-black, and places it near *A. viridicornis* Say and *cyanella* Castelnau and Gory from the United States, but *bifoveata* is very distinct from any North American species by having the pronotum broadly and very deeply impressed at the posterior angles.

ANTHAXIA SUBSINUATA Gory

Anthaxia subsinuata, DEJEAN, Cat. Coloept., 3 ed., 1836, p. 91 (no description).—GORY, Mon. Bupr. Suppl., vol. 4, 1841, pp. 289–290, pl. 48, fig. 283.—JACQUELIN DUVAL, in Ramon de la Sagra's Hist. Phys. Polit. et Nat. de l'ile de Cuba, Anim. Artic., 1857 (French Edition), p. 65; (Spanish Edition) vol. 7, 1857, p. 29.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 581 (separates p. 157).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, pp. 164–165.

The following is a translation of Gory's original description:

Greenish-black; thorax bi-impressed and punctate; elytra granulose. Length, $2\frac{1}{2}$ lines; width, $\frac{3}{4}$ line. Habitat, Cuba.

Greenish-black. Mandibles of a beautiful golden-green. Head punctate, with purplish reflection. Thorax with the anterior angles declivous, the posterior ones straight, and the surface covered with round, rather closely placed punctures, and near the posterior angles with a rather large impression, which is smooth at the bottom. Scutellum cupreous, triangular, and very finely granulose. Elytra granulose, impressed at the base, and rounded at the apex, and with the lateral margins and suture elevated behind the middle. Beneath the body and legs are punctate, and of a very dark wine color.

No specimens of this species have been examined. Jacquelin Duval (1859) and Gundlach (1891) report it from Cuba, but both authors state that they have not seen any specimens of it. From the records it seems that the only known specimen of this species is the type in the collection of Count Mnischek. Chevrolat (1867) has examined the type, from which he gives a redescription, and the following is a translation of it:

Blackish-plumbeus, opaque, beneath shining; head flat, the front with a rather deep and short fovea; eyes green. Thorax transverse; front bisinuate, with a rounded median lobe; base nearly straight; sides toward middle transversely impressed; elytra granulose, each elytron with four foveae in front and middle, apex obtusely rounded.

Length, 5.5 mm.; width, 2 mm. Habitat, Cuba.

Genus MELANOPHILA Eschscholtz

Melanophila ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 8 (reprint, p. 8).—

LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 47-49.—HORN, Trans. Amer. Ent. Soc., vol. 10, 1882, pp. 101-106, pl. 4.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 163-166.

Apatura CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, pp. 1-10, pls. 1-2, Addenda p. 2.

Diana CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, *Buprestis*, pp. 155-157, pl. 38-39.

Trachypterus KIRBY, Richardson's Fauna Bor. Amer., vol. 4, 1837, pp. 158-160.

Oxypterus KIRBY, Richardson's Fauna Bor. Amer., vol. 4, 1837, pp. 160-161.

Head nearly flat and not narrowed by the insertion of the antennae; epistoma very short and narrow, broadly arcuately emarginate in front; antennal cavities small, round, not concealed under a carina, narrowly closed in front and situated a short distance from the inner margin of the eyes. Antennae moderately long, subfiliform; first joint clavate and somewhat elongate; second short, obconic; third slightly longer than the second, and shorter than first, feebly triangular; the following joints triangular, dentate on the inner side, and armed with a terminal poriferous fovea. Eyes elliptical, elongate, feebly oblique, and only a little closer to each other on the vertex than at the front. Pronotum wider than long; disk feebly convex, sometimes grooved at the middle or impressed on the sides; sides angulate or arcuately rounded, with a smooth marginal carina; base

distinctly bisinuate. Scutellum small, rounded or transverse. Elytra moderately elongate, subdepressed strongly acuminate posteriorly and entirely covering the pygidium; lateral margins dentate; apex rounded or armed with strong teeth. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former rather elongate. Mestasternum truncate or feebly lobed in front. Prosternum with the anterior margin truncate, and not lobed; prosternal process narrow, expanded behind the coxal cavities, and acuminate at apex. Posterior coxae feebly dilated internally; anterior margin strongly bisinuate; posterior margin nearly straight. Legs feebly robust; anterior femora more robust than posterior ones; tibiae normal, slender and cylindrical; tarsi elongate, and slender. Body oblong and rather strongly depressed.

This genus contains a large number of species and has a wide distribution, but the species are more numerous in North and South America, and Europe.

The species are variable in form and color and their number have been greatly exaggerated by the great variation in the color and elytral markings, and also on account of a few species having a distribution which covers the entire circumpolar region, these conditions have caused much confusion and synonymy. So far, only two species have been reported from the West Indies, both of which are found in the United States, and may have been introduced into the islands in lumber.

KEY TO THE SPECIES

1. Front of head sparsely, irregularly punctate, and strongly shining; elytra usually with yellow markings, sometimes entirely black.
notata (Castelnau and Gory).
- Front of head densely, coarsely punctate, and opaque; elytra always uniformly black.-----acuminata (De Geer).

MELANOPHILA NOTATA (Castelnau and Gory)

Apatura notata CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, p. 4, pl. 1, fig. 5; addenda p. 2.

Melanophila notata CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 580 (separates p. 156).—GUNDLACH, Contribucion á la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 163–164, no. 1705.

Melanophila luteosignata MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, No. 8, 1837, p. 70.

Phaenops luteosignata ZIEGLER, Proc. Acad. Nat. Sci. Phila., vol. 2, 1845, p. 267.—DEJEAN, Cat. Coleopt., 3 ed., 1836, p. 89.

Melanophila opaca LECONTE, Trans. Amer. Philos. Soc., n. ser., vol. 11, 1857, p. 213.

Form broadly elongate and strongly depressed, broadly rounded in front and strongly acuminate behind; head and pronotum black.

the former strongly shining; elytra black, with variable orange-yellow markings, which are sometimes entirely wanting; beneath black, with a strong purplish reflection and very sparsely pubescent.

Head feebly convex, with the sides feebly obliquely narrowed to the vertex; front and vertex without distinct depressions or carinae; surface coarsely and rather sparsely punctate, the punctures oblong and irregularly placed; intervals smooth and shining; epistoma broadly arcuately emarginate in front, forming an obtuse tooth on each side of the emargination. Pronotum transverse, one and one-half times as wide as long, widest just in front of middle, narrower behind than in front; sides arcuately rounded in front, more obliquely attenuate posteriorly to the posterior angles, which are rectangular, the marginal line distinct posteriorly; anterior margin deeply arcuately emarginate, with a broadly rounded median lobe; base bisinuate, with a large broadly rounded median lobe, which is feebly elevated near the scutellum; disk with an obsolete longitudinal median line terminating in a round deep fovea in front of scutellum, strongly depressed at base near posterior angles, and sometimes with a broad obsolete depression on each side of the median line; surface coarsely and obsoletely punctate at middle, the sides of punctures forming crenulate lines, which are somewhat concentrical, toward the sides the punctures are larger, deeper and more confluent, the sides forming a network of irregular polygonal areas, with the bottoms densely granulose. Scutellum small, cordate, with the surface depressed and granulose. Elytra wider than pronotum at base; sides obtusely angulate at base, broadly rounded at humeri, feebly sinuate and nearly parallel to apical third, then strongly arcuately attenuate to the tips, which are acute; lateral margins finely serrate posteriorly; humeri not prominent; surface strongly broadly depressed at base near humeral angles, and densely, coarsely scabrous. Abdomen beneath with posterior margin of segments smooth, and the surface coarsely and rather deeply punctate, the punctures deeper, open posteriorly, and somewhat confluent on the basal segments, becoming more obsolete and forming crenulate lines toward the apex; last segment feebly arcuately emarginate at apex, the angles not prominent, and with a distinct serrate subapical ridge. Metasternum densely and coarsely punctate, with the sides well defined. Prosternum strongly convex, anterior margin truncate, declivous and without a median lobe, the surface rather finely and densely punctate; prosternal process feebly convex, sides narrowly margined, surface densely and coarsely punctate, abruptly expanded behind the coxal cavities, and with an acute tooth at the apex. First joint of posterior tarsi as long as the following two joints united.

Length, 7-15 mm.; width, 2.5-5.5 mm.

This species varies considerably in size and in the arrangement of the colored markings on the elytra. There will be no difficulty in separating the maculate forms from *acuminata* De Geer, and the specimens which have the elytra entirely black can be separated from it by the head being more sparsely, irregularly punctate, and very strongly shining. There does not seem to be any good external characters for separating the sexes, either in this species or in *acuminata*.

It was described by Castelnau and Gory from North America without giving any definite locality. LeConte (1859) described the black form from Georgia, under the name of *opaca*. It is widely distributed and its range extends from the Middle States into Mexico. Chevrolat (1867) records it from the Isla de Pinos in the collections of Gundlach and Poey. Gundlach (1891) reports it from the same locality. Specimens have been seen from the following West Indian localities: Coll. U. S. Nat. Mus.; Bahamas, collected on vessel by (H. F. Wickham). Coll. Amer. Mus. Nat. Hist.: "Bahamas" without definite locality; black form, Nassau, Bahamas, May–June, 1904 (W. M. Wheeler). No specimens were found in the Poey collection in Philadelphia, but there is a single example labeled No. 1705 in the Gundlach Museum in Habana which has not been examined by the writer.

MELANOPHILA ACUMINATA (De Geer)

- Buprestis acuminata* DE GEER, Mem. Hist. Ins., vol. 4, 1774, pp. 133–134.
Buprestis acuta GMELIN, Linn. Syst. Nat., 13 ed., vol. 1, pt. 4, 1788, p. 1939.
Buprestis morio FABRICIUS, Ent. Syst., vol. 1, pt. 2, 1792, pp. 210–211.—
 PAYKULL, Faun. Suec. Ins., vol. 2, 1799, p. 230.
Buprestis appendiculata FABRICIUS, Ent. Syst., vol. 1, pt. 2, 1792, p. 210.—
 ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9.
Phaenops appendiculata DEJEAN, Cat. Coleop., 3 ed., 1836, p. 89.
Apatura appendiculata CASTELNAU and GORY, vol. 2, 1838, pp. 8–9, pl. 2, fig. 14; addenda, pp. 2 and 3.
Anthaxia pecchiolii CASTELNAU and GORY, Mon. Bupr., vol. 2, 1839, pp. 33–34, pl. 8, fig. 46.
Buprestis atropurpureus SAY, Journ. Acad. Nat. Sci. Phila., vol. 3, 1823, p. 160.
Oxypterus appendiculata KIRBY, Richardson's Fauna Bor. Amer., vol. 4, 1837, pp. 160–161.
Melanophila immaculata MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, 1837, p. 70.
Buprestis longipes SAY, Journ. Acad. Nat. Sci., Phila., vol. 3, 1823, p. 164.
Melanophila longipes MANNERHEIM, Bull. Soc. Imp. Nat. Moscou, vol. 10, no. 8, p. 7.—CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 581 (separates p. 157).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 164, no. 1853.

Form broadly elongate and strongly depressed, broadly rounded in front and strongly acuminate behind, uniformly black above and

beneath, feebly shining, and rarely with a metallic reflection; beneath sparsely pubescent.

Head flat or feebly convex, with the sides obliquely narrowed to the vertex; front and vertex without impressions or carinae; surface densely and coarsely punctate, the punctures shallow, oblong, confluent, irregular in shape, and with the bottoms coarsely, densely granulose; eyes moderately large, feebly convex, and slightly closer together on the vertex than at bottom; epistoma broadly arcuately emarginate in front, forming an obtuse tooth on each side of the emargination. Pronotum transverse, nearly one and one-half times as wide as long, widest at apical third, slightly narrower behind than in front; sides broadly rounded at apical third, then obliquely attenuate to the posterior angles, which are rectangular, the marginal line distinct posteriorly; anterior margin deeply arcuately emarginate, with a distinct angulated lobe at middle; base bisinuate, with the median lobe large, broadly rounded, and strongly elevated near the scutellum; disk with a broad median longitudinal groove, feebly impressed anteriorly, obsolete at middle, and terminating in a round deep puncture in front of scutellum, sometimes with an obsolete depression on each side of the median line; surface densely, coarsely granulose at middle, with a few obsolete punctures intermixed, at the sides the punctures are shallow, coarser, and confluent, the sides forming a network of irregular polygonal areas, the bottoms of which are densely granulose. Scutellum small, and the surface coarsely and densely granulose. Elytra wider than pronotum at base; sides obtusely angulate at base, broadly rounded at humeri, nearly parallel to apical third, then strongly, accurately attenuate to the tips, which are very acute; lateral margins finely serrate posteriorly; humeri not prominent; surface with a broad deep depression between the base and humeri, and densely, coarsely sebrous. Abdomen beneath with posterior margin of segment smooth, and the surface coarsely but not deeply punctate, the punctures coarser, and open posteriorly on the basal segments, becoming merely transverse crenulate lines toward the sides and apex; last segment broadly arcuately emarginate at apex, the angles acute but not prominent, and with an obsolete serrate subapical ridge. Metasternum more densely punctured than abdomen, the punctures round, with the sides well defined. Prosternum strongly convex, the anterior margin nearly truncate, and the surface coarsely and deeply punctate anteriorly, becoming transversely rugose posteriorly; prosternal process feebly convex, sides narrowly margined, the surface very coarsely punctate, abruptly expanded behind the coxal cavities and with an acute tooth at apex. First joint of the posterior tarsi nearly as long as the following three joints united.

Length, 7.5-11 mm.; width, 3-4.5 mm.

This is a very common circumpolar species found throughout the greater part of North America, Europe, and Siberia. It is closely allied to *notata* Castelnau and Gory, but can always be distinguished from that species by the head being very densely punctured, strongly opaque, and never shining as in *notata*, and the elytra is never ornated with yellow markings. It is reported as living in various species of spruce, pine, and fir.

It was first described by De Geer from an unknown locality, and later from Europe under a number of different names by various authors. Eschscholtz (1829) places *appendiculata* Fabricius in his new genus *Melanophila*. Say (1823) described the same species from Pennsylvania and the Western States under the name of *longipes*, and this name has been used in recording the species from the West Indies.

Chevrolat (1867) records the species from Cuba, in the collections of Gundlach and Poey. Gundlach (1891) records collecting it at "Brazo del Cauto," Santiago de Cuba.

Specimens have been examined from the following West Indian localities. Coll. S. C. Bruner: Camaguey, Cuba, Nov. 11, 1921 (Angelica Prieto). Coll. British Mus.: Two specimens labeled "Haiti, Saunders 74-18." This species is not represented in the Poey collection in Philadelphia, but there is a single example, labeled No. 1053, in the Gundlach Museum in Habana, which has not been examined by the writer.

Genus TETRAGONOSCHEMA Thomson

Tetragonoschema THOMSON, Archiv. Entom., vol. 1, 1857, p. 116.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 3, 1903, pp. 168-169.
Pachypyga STEINHEIL, Atti. Soc. Ent. Ital., vol. 5, 1872, p. 564.

Head rectangular, front depressed at middle and not narrowed by the insertion of the antennae; epistoma narrow, short, and feebly emarginate at the middle; antennal cavities rather large, rounded, not concealed under a carina, and situated rather close to the inner margin of the eyes. Antennae moderately long; first joint thick and clavate; second and third short, oboconic, and equal to each other in length; fourth a little longer and triangular; following joints rather robust, triangular, dentate on the inner side and armed with a terminal poriferous fovea. Eyes large, elliptical, and parallel. Pronotum wider than long, bisinuate in front, with the median lobe angulate; sides more or less rounded, with the posterior angles straight or obtuse; base distinctly sinuate. Scutellum triangular. Elytra short, sinuate, subparallel, truncate at the base, broadly and separately rounded at apex, and not covering the pygidium, which is concave. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former subcontiguous. Meta-

sternum truncate in front and grooved at the middle. Prosternum with the anterior margin feebly emarginate in front; prosternal process flat, and acuminata at apex. Posterior coxae dilated internally; anterior margin feebly sinuate; posterior margin oblique. Legs feebly robust; femora and tibiae normal; tarsi moderately long. Abdomen short and convex; the last segment in the male with a transverse carina, and sinuate at the middle, the female with a large transverse depression. Body flat, short, and rectangular.

This genus was erected by Thomson (1857) for *chrysomelina* from Haiti, which is a synonym of *quadrata* Buquet. Steinheil (1872) erected the genus *Pachypyga* for a new species *undata* from the Argentine Republic, which is supposed to be congeneric with *quadrata* Buquet. So far, only six species have been described in this genus, four from South America, one from Guatemala, and the other one from Haiti.

TETRAGONOSCHEMA QUADRATA (Buquet)

Anthaxia quadrata BUQUET, Rev. Zool., 1841, pp. 194-195.

Tetragonoschema chrysomelina THOMSON, Archiv. Entom., vol. 1, 1857, p. 116, pl. 10, fig. 2.

The following is a translation of Buquet's original description:

Cyaneous, shining; elytra uneven and marked with three excavations; antennae, legs and abdomen greenish-bronzy. Length, 4 mm.; width, 2.75 mm.

Brilliant dark blue above. Head wide, finely reticulate and nearly covered with a very feeble network, and with a distinctly marked broad longitudinal groove in the middle. Eyes rather large and of a brownish color. Antennae brilliant green. Thorax very narrow at base, convex, nearly two times as wide as the head at the extremity, with a transverse groove, and bordered at the lower part by a brilliant, smooth, narrow line, which very distinctly detaches it from the elytra. Scutellum triangular, and longer than wide. Elytra nearly as wide as long, flat, parallel, uneven, and cut off squarely at base, rounded at the apex, and each elytron with three deep transverse impressions; the first near the scutellum, and interrupted in the middle by a longitudinal costa; the second a little behind the first; and the third situated near the apex; these are covered with a very fine reticulation, and bordered besides in their entire length. Body beneath finely punctate, and also the legs, which are a brilliant green. It has been given to me by Mr. Petit de la Saussaye, as having been found in Santo Domingo.

The species was first described by Buquet (1841) from Santo Domingo. Thomson (1857) described the same species under the name *chrysomelina* from Haiti, for which he erected the new genus *Tetragonoschema*. The species seems to be rare in collections, as no specimens have been available for examination, and Dr. C. J. Gahan states that the species is not represented in the British Museum collection.

Genus TRACHYS Fabricius²⁶

Trachys FABRICIUS, Syst. Eleuth., vol. 2, 1801, p. 218–220.—ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint, p. 8).—SOLIER, Ann. Soc. Ent. France, vol. 2, 1833, pp. 311–312, pl. 12, fig. 30.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1840, pp. 1–11, pls. 1–2.—LACORDAIRE, Gen. Col., vol. 4, 1857, p. 88.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 307–314.

Head rather convex, wide, and more or less grooved or concave, and strongly narrowed by the antennal cavities; epistoma constricted posteriorly by the antennal cavities, and emarginate in front; antennal cavities rather large, oblique, rounded behind, prolonged into a groove in front, and situated a short distance from the eyes. Antennae 11-jointed, the basal joints inserted in a groove between the eyes and epistoma, the groove not prolonged on the prosternum, the apical joints free while in repose; first and second joints thick; third to sixth slender, cylindrical; the following joints triangular, dentate on the inner margin, and armed with terminal poriferous foveae. Eyes large, oval, sometimes projecting, and more widely separated on occiput than in front. Pronotum much wider than long, narrower in front than behind; anterior margin arcuately emarginate, with the apical angles acute; sides narrowed anteriorly; base strongly bisinuate. Scutellum very small or invisible. Elytra broad, attenuate posteriorly, and rounded at apex; humeri prominent and sometimes extending into a longitudinal carina along the lateral margin and at some distance from it. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former short and very indistinct. Metasternum feebly, arcuately emarginate in front. Prosternum short, wide, rounded at apex, and the anterior margin armed with a more or less broad lobe. Middle coxae a little more widely separated than the anterior ones; posterior ones usually dilated externally. Legs slightly robust and not lodged in depressions beneath; femora rather thick; tibiae slender, straight or feebly arcuate, and in repose not concealed in grooves in the femora; tarsi very short, the joints enlarged and lobed, the first joint longer than the following; tarsal claws strongly toothed at base. Body short, suboval, or pentagonal.

This genus contains a large number of very small leaf-mining forms. It is distributed throughout the entire world with the exception of the Nearctic Region. The species of the genus reach their highest development in the Indo-Malaysian Region, but a few spe-

²⁶ Since submitting this article for publication there has appeared an article by Dr Jan Obenberger (Sborník Entomologického Oddělení Národního Muzea v Praze, vol. 1, 1923, p. 41), in which he places *Lius guadeloupensis* Fleutiaux and Sallé in his new genus *Neotrachys*.

cies have been described from America, including one from the Guadeloupe Islands. The American species are not entirely congeneric with the species from Malaysia and probably should form a new genus, but until more material is available for study it is advisable to retain them in the present genus.

TRACHYS GUADELOUPENSIS (Fleutiaux and Sallé)

Lius guadeloupensis FLEUTIAUX and SALLÉ, Ann. Soc. Ent. France, ser. 6, vol. 9, 1890, pp. 404-405 (separates pp. 54-55).

Trachys chevrolati KERREMANS, Ann. Soc. Ent. France, vol. 65, 1896, pp. 26-27.

Elongate, moderately convex, broadly rounded in front, attenuate posteriorly, and slightly narrower behind than in front, glabrous and strongly shining, uniformly aeneous above; beneath piceous, with a slightly aeneous tinge.

Head broad, nearly flat, feebly longitudinally impressed on the front, deeply transversely impressed behind the epistoma, with a round deeper impression behind the antennal cavities; surface sparsely and irregularly punctate, the punctures shallow and rather coarse on the occiput, but becoming nearly obsolete toward the epistoma; intervals smooth; epistoma wide between the antennal cavities (about three times as wide as the cavities), the anterior margin deeply, arcuately emarginate and strongly elevated; antennae rather short and entirely piceous. Pronotum slightly convex, two and one-half times as wide as long at middle, distinctly narrower in front than behind, and widest at base; sides obliquely arcuate from base to anterior angles and narrowly margined; anterior angles acute; posterior angles nearly rectangular and slightly projecting; anterior margin broadly arcuately emarginate, with an obsolete lobe at middle; base transversely truncate to near middle of elytron, then feebly sinuate and turning obliquely backward to the scutellum, in front of which it is broadly rounded; surface narrowly impressed along lateral margin, and with a broad, shallow impression near the posterior angles; punctuation similar to that on the head. Scutellum very small and triangular. Elytra moderately convex, distinctly wider than pronotum at base; humeral angles broadly rounded; sides feebly obliquely attenuate to behind the middle, then arcuately attenuate to the tips, which are conjointly narrowly rounded, with the lateral margin entire; each elytron with a broad, shallow impression at base, and a more elongate one behind the humerus close to the lateral margin, causing an obsolete elevation near the middle at lateral margin, which is less elevated than the humerus; surface without lateral carina, rather densely and irregularly punctate, the punctures coarse and stelliform at base, becoming more obsolete at the apex; intervals smooth. Abdomen beneath

coarsely and sparsely punctate, the punctures very shallow, ocellate, oval at middle, but becoming more elongate at the sides of first segment, and sparsely clothed with a few inconspicuous hairs; intervals finely and densely granulose; last segment broadly rounded at apex. Prosternum sparsely, coarsely punctate; anterior margin broadly rounded; prosternal process broad, slightly expanded behind the coxal cavities, and broadly rounded at apex.

Length, 2.4 mm.; width, .75 mm.

This species was described and placed in the genus *Lius* by Fleutiaux and Sallé from material collected by Delauney during August at Camp Jacobs, in the southern part of Guadeloupe. Kerremans (1896) described *Trachys chevrolati* from Guadeloupe from material in the Chevrolat collection. I have carefully compared the descriptions of *Lius guadeloupensis* and *Trachys chevrolati* and find no differences, and since *L. guadeloupensis* was unknown to Kerremans at the time he described *T. chevrolati*, I have placed his species as a synonym of *guadeloupensis*.

The above description was made from eight specimens collected at Gourbeyre, which is near the type locality in Guadeloupe, and kindly loaned to me by the American Museum of Natural History. (Two of these specimens have been donated to the United States National Museum collection.) These specimens agree very well with the description given by Fleutiaux and Sallé for this species, but they belong to the genus *Trachys*, which can be easily distinguished from the genus *Lius* by the absence of grooves on the prosternum for the reception of the antenna while in repose.

Genus BRACHYS Solier

Brachys SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 312–313.—

LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 86–87.—DEJEAN, Cat. Coleopt., 2 ed., 1833, p. 83.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1840, pp. 1–9.—GORY, Mon. Bupr., Suppl., vol. 4, 1841, pp. 329–349.—LECONTE, Trans. Amer. Philos. Soc., new ser., vol. 11, 1859, pp. 250–253.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 324–327.

Head moderately large, front grooved; epistoma bisinuate in front, and strongly narrowed by the antennal cavities; antennal cavities large, oblique, rounded behind, and prolonged into a groove in front, and situated some distance from the eyes. Antennae 11-jointed; first joint thick and obconic; second cylindrical, nearly as long and thick as the first; third and fourth subequal in length, more slender and shorter than the second; the following joints dentate on the inner side, and armed with terminal poriferous foveæ. Eyes rather large, oval, subparallel, and sometimes a little more widely separated on vertex than at front. Pronotum trapeziform, wider than long; disk convex, depressed at sides and base; sides

obliquely narrowed anteriorly; anterior margin nearly straight; base strongly bisinuate, with a distinct median lobe. Scutellum large, triangular, and wider than long. Elytra broad and short, abruptly attenuate behind; humeri prominent, and often extending into a longitudinal carina along the lateral margin, the disk sometimes with distinct longitudinal carinae. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former very short, transverse, and compressed upon the side or invisible. Metasternum broadly emarginate in front. Prosternum truncate in front, with the sides deeply grooved near the margin for the reception of the antennae; prosternal process with a large, deep, elongate fovea at middle. Middle coxae a little more widely separated than anterior ones; posterior pairs are but slightly dilated internally, narrowest at middle, and broader externally. Legs very contractile, and while in repose are lodged in depressions beneath; femora feebly swollen, the anterior and middle pairs articulate at apex; tibiae slender and cylindrical, usually straight, but in a few cases arcuate; tarsi very short; tarsal claws toothed at base. Body usually broad and ovate, attenuate in front and acuminate behind.

The species of this genus are very numerous and their distribution heretofore has been confined to North, Central, and South America. The following new species extends the distribution to the West Indies. The adults are short, ovate and of various metallic colors, the dorsal parts usually ornated with pubescent designs, sometimes glabrous and occasionally with tufts of erect hairs, and are found during the warmer part of the day on flowers, or feeding on the foliage. The larvae are miners in the leaves of various trees and plants.

BRACHYS THOMAE, new species

Broadly cuneiform, distinctly longer than wide, broadly rounded in front, more acuminate posteriorly, and narrower behind than in front, shining, piceous, with feeble purplish and cupreous reflections, and ornated with indistinct irregular pubescent designs; beneath uniformly piceous.

Head feebly convex, longitudinally grooved from occiput to epistoma, the groove very broad and deep on the front, but becoming narrower and not as deeply impressed on the occiput, when viewed from above the front is deeply emarginate, and each side forming a semicircle with the eyes; surface densely, finely granulose, and sparsely clothed on the vertex, along the eyes, and behind the epistoma with a few recumbent cinereous hairs; epistoma narrow between the antennal cavities (about one-half as wide as the cavities),

feebly concave and without transverse carina in front. Pronotum moderately convex, two times as wide as long at the middle, distinctly narrower in front than behind, widest at base; sides strongly arcuately attenuate from base to anterior angles; anterior margin truncate, without a median lobe; base transversely truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is feebly arcuately emarginate; posterior angles nearly rectangular, surface broadly depressed along the sides, the depression extending obliquely from the anterior angles to the base at middle of elytron, then transversely along the base, causing the anterior median part of the disk to be regularly convex, each side with a short straight indistinct lateral carina, the surface is also densely, finely granulose, with numerous shallow ocellate punctures in the depressed areas, and sparsely clothed with moderately long recumbent cinereous hairs. Scutellum obsoletely granulose broadly triangular, with the anterior margin feebly rounded. Elytra not quite as wide as pronotum at base, widest just behind the humeral angles, which are obtusely angulated; sides strongly sinuate at basal third, then strongly obliquely attenuate to the tips, which are conjointly, broadly rounded, with the lateral margins entire; humeri prominent; each elytron with a moderately deep broad depression at the base, and an elongate one behind the humerus between the lateral carina and lateral margin, and with a strongly elevated, sinuate smooth lateral carina extending from the humeral angle to near the apex; the surface with two fine longitudinal lines of fulvous hairs extending from the base to near the middle, and sparsely clothed with recumbent cinereous hairs (with a few fulvous ones intermixed), the cinereous pubescence tending to form obsolete fasciae at middle and apical fifth; surface finely, sparsely punctate, with a longitudinal row of larger punctures on each side of the longitudinal lines of hairs; intervals obsoletely rugose on basal part, but becoming smoother toward apex. Abdomen beneath strongly convex, sparsely and ocellate-punctate, the punctures large, obsolete, open on the one side, and from each one arises a short recumbent cinereous hair, the hairs more conspicuous toward the sides; intervals finely and densely granulose; last segment subtruncate at apex, with the margin very finely dentate. Front and middle tibiae strongly arcuate, the latter with a distinct tooth at the apex (hind tibiae missing).

Length, 3 mm.; width, 1.4 mm.

Type locality.—La Belle, St. Thomas, West Indies.

Type.—Carnegie Museum, Pittsburgh.

Described from a unique specimen received from the Carnegie Museum.

In general form this species resembles *Brachys bellus* Fisher from Panama, but can be easily distinguished from that species by the color being entirely different, and the pronotum having distinct lateral carinae.

Genus **TAPHROCERUS** Solier

Taphrocerus SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 314-315.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 327-328.

Head large, moderately convex and more or less grooved on front; epistoma broadly emarginate in front, strongly narrowed by the antennal cavities, and separated from the front by a transverse carina; antennal cavities large, oblique, rounded behind, prolonged into a groove in front, and situated at some distance from the eyes. Antennae rather long, and while in repose inserted in a groove in the prosternum; first joint robust, elongate and somewhat arcuate; second robust, slightly shorter than the first; third and fourth and sometimes the fifth elongate, longer and more slender than the second; following joints triangular, dentate on the inner margin, and armed with terminal poriferous foveae. Eyes moderately large, oval, not touching the pronotum, sometimes projecting, and parallel or feebly oblique on the inner margin. Pronotum wider than long; disk sometimes very uneven, with or without lateral carina; anterior margin usually truncate; sides more or less sinuate; base strongly bisinuate, with a distinct median lobe, which is more or less emarginate. Scutellum triangular, the anterior margin sometimes rounded, and apex rather acute. Elytra rather elongate and moderately convex, strongly acuminate posteriorly, sometimes with a distinct lateral carina, and the surface glabrous or pubescent. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former very small. Metasternum rather deeply and angularly emarginate in front. Prosternum broadly rounded in front; prosternal process strongly constricted by the coxal cavities, behind which it is dilated, with the apex acute. Middle coxae a little more widely separated than the anterior ones; posterior pair very short, concave, and feebly dilated internally. Legs rather robust and not lodged in depressions beneath; anterior and middle femora feebly swollen, and arcuate at apex, the posterior pair more slender and nearly straight; anterior and middle tibiae cylindrical and more or less arcuate, the posterior ones less arcuate; tarsi rather longer than usual for this group; tarsal claws dentate. Body elongate and broadly agriliform.

This genus contains about 50 described species, which are confined in their distribution to the Western Hemisphere. So far seven species have been found in the West Indies, of which five are de-

scribed as new in the present paper. The species are elongate, broadly agriliform, and usually of a piceous or aeneous color. They are closely allied to each other and very difficult to describe in such a way that they can be easily recognized, but the species from the West Indies can be separated by the characters given in the following table:

KEY TO THE SPECIES

- | | |
|--|------------------------|
| 1. Surface above unicolored----- | 2. |
| Surface above bicolor----- | 6. |
| 2. Elytra with lateral carina----- | 3. |
| Elytra without lateral carina----- | 4. |
| 3. Surface above aeneous----- | laesicollis Chevrolat. |
| Surface above piceous----- | tenuis Fisher. |
| 4. Pronotum widest at base----- | subglaber Fisher. |
| Pronotum widest in front of base----- | 5. |
| 5. Pronotum widest at apical third, then obliquely attenuate to posterior angles; head transversely truncate in front when view from above; color above aeneo-cupreous----- | aeneocupreus Fisher. |
| Pronotum widest at basal third, where it is abruptly constricted and then parallel to the posterior angles; head broadly rounded in front when viewed from above; color above aeneo-piceous----- | timidus Chevrolat. |
| 6. Sides of pronotum strongly constricted at base, which is broadly depressed in front of scutellum; head and anterior part of pronotum cupreous, elytra dark shining green at base, becoming bronzy and strongly opaque on apical two-thirds----- | elegans Fisher. |
| Sides of pronotum arcuately rounded; base not depressed in front of scutellum; head and pronotum dark aeneous, elytra piceous, shining. | |
| | aeneocollis Fisher. |

TAPHROCERUS LAESICOLLIS Chevrolat

Taphrocerus laesicollis CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 1867, p. 587; (separate p. 163).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, pp. 170–171.

The following is a translation of Chevrolat's original description:

Allied to *Brachys gentilis* Dejean and *alboguttatus* Gory; aeneous, somewhat shining, vaguely and deeply punctate; head punctate, anteriorly deeply sulcate and posteriorly more narrowly sulcate; eyes black with a golden margin; thorax transverse, vaguely punctate, in front straight, externally margined, and from there up to the base sulcate, on the sides obliquely bicarinate (the carina externally excavated), declivous anteriorly, nearly straight toward base, sometimes very freely arcuate externally and subemarginate at middle, with two deep subquadrate median sulci, transversely limited on the disk; scutellum subrotund and shining; elytra elongate, toward the base feebly wider, and then gradually attenuate, separately obtusely rounded, at basal margin, suture and scutellum margined, humeral callosity elevated and produced into a longitudinal costa, minutely granulose, punctate-striate, the sutural stria inversely sulcate, the striae beyond middle obsolete, and the punctures in the striae irregular, posteriorly corinaceous and more shining; body beneath and legs dark aeneous. Length, 3.75 mm.; width, 1 mm. Habitat, Cuba. Collections of Gundlach and Poey.

Gundlach (1891) states that: "Chevrolat records receiving a specimen from me but the species is not represented in my collection." The species is not represented in either the Poey collection in Philadelphia nor the Gundlach Museum in Habana, so I have been unable to examine any specimens of this species, and it is included in the key from the characters given in the original description.

This species can be separated from all the described West Indian species of this genus, with the exception of *tenuis* Fisher, by the elytra having a distinct lateral carina, extending from the humeri backward for a short distance. From *tenuis* it can be separated by the color, which is recorded as aeneous, while in that species it is entirely piceous, with only a slight aeneous tinge when viewed in certain lights.

TAPHROCERUS TENUIS, new species

Form elongate, subcylindrical, strongly attenuate posteriorly, moderately convex above, shining, uniformly piceous above, with a very feeble aeneous tinge in certain lights, and without pubescent spots; beneath of the same color as above.

Head slightly narrower than pronotum at base, and when viewed from above is transversely truncate in front, with a longitudinal groove extending from the epistoma to the occiput, the groove forming an elongated triangular space behind the epistoma, and becoming obsolete on the occiput; front wide, with the sides more widely separated above than in front, and feebly convex between the eyes; surface glabrous, finely and obsoletely reticulate, with a few shallow, irregularly placed punctures intermixed; eyes oval, equally rounded at both ends, strongly convex, and slightly projecting; epistoma feebly elevated, and rather narrowly and deeply arcuately emarginate in front. Pronotum moderately convex, two times as wide as long, apex and base about equal in width, widest at about the basal third; sides when viewed from above are obliquely dilated to basal third, then abruptly narrowed and feebly arcuately emarginated to the posterior angles, which are nearly rectangular; anterior margin nearly truncate; base truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is arcuately emarginate; surface with a shallow, broad transverse depression along anterior margin, connected on each side to a broad depression at lateral margin, which extends obliquely backward to the base, but not transversely along base in front of scutellum, causing the surface near posterior angles to be feebly gibbose, surface with a few scattered ocellate punctures, from the center of which arises a short inconspicuous cinereous hair; intervals finely and densely reticulate. Scutellum triangular, rounded in front, with the surface nearly smooth. Elytra moderately convex, slightly

wider than pronotum at base; humeral angles obtusely angulated; sides feebly arcuately concave from the humeral angles to middle, where they are broadly rounded and about equal in width to the base, then strongly obliquely attenuate to the tips, which are separately rounded and feebly serrulate; humeri well developed; each elytron with a broad and rather deep basal depression, and a distinct lateral carina extending from the humeri to about basal third; surface with indistinct rows of shallow, feebly defined punctures, which are obsoletely granulose at the bottom, the punctures rather large at base, but becoming very fine and indistinct toward the apex; intervals somewhat rugose at base, but nearly smooth at the apical region, and very sparsely clothed with a few short inconspicuous hairs. Abdomen beneath moderately convex, sparsely and rather obsoletely punctate, the punctures very shallow, oblong, and open on the one side, each puncture bearing a short recumbent cinereous hair; intervals densely and obsoletely reticulate; last segment broadly rounded at apex, with the apical groove deep, and following the outline of the lateral margin, but not extending to it. Prosternum rather coarsely punctate. Front and middle tibiae moderately arcuate.

Length, 3.2 mm.; width 1 mm.

Type locality.—Trinidad, West Indies.

Type and paratypes.—Cat. No. 26815, U.S.N.M.

Described from five specimens collected by August Busck, June 12 and 21.

This species can be easily distinguished from all the other species of this genus described from the West Indies (except *laesicollis* Chevrolat), by the elytra having a distinct lateral carina. From *laesicollis* it can be separated by the color, which is piceous, and not aeneous, as in that species.

TAPHROCERUS SUBGLABER, new species

Form rather broadly elongate, strongly attenuate posteriorly, moderately convex above; shining, uniformly piceous, with a strong aenous or olivaceous tinge, and without pubescent spots; beneath slightly more aeneous than above.

Head considerably narrower than pronotum at base, and when viewed from above is transversely truncate in front, with a feeble emargination at middle, with a longitudinal groove extending from the occiput to epistoma, the groove rather broadly and deeply impressed on the front, but becoming obsolete on the occiput; front wide, with the sides more widely separated above than in front, and feebly convex between the eyes; surface nearly smooth, with a few very shallow, irregularly placed punctures, and very sparsely clothed with short, inconspicuous, cinereous hairs; eyes large, oval, about

equally rounded at both ends, strongly convex and slightly projecting; epistoma flat and rather narrowly and deeply arcuately emarginate in front. Pronotum moderately convex, two times as wide as long, distinctly narrower in front than behind, widest at base; sides when viewed from above are parallel at apical angles, then obliquely dilated to the base; anterior margin feebly arcuate; base nearly transversely truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is feebly arcuately emarginate; surface with a narrow transverse depression along the anterior margin, connected at each side to a broad concave depression at the lateral margin, which extends obliquely backward and then transversely along base, these depressions cause the surface to be broadly transversely elevated on the disk anteriorly, sparsely irregular ocellate-punctate, the punctures more widely separated on the disk, and from the center of each arises a short inconspicuous cinereous hair; intervals nearly smooth (obsoletely reticulate under a high-power lens). Scutellum triangular, feebly rounded in front, with the surface finely and obsoletely reticulate. Elytra moderately convex, not quite as wide as pronotum at base; humeral angles obtusely angulated; sides strongly arcuately concave from the humeral angles to middle, where they are broadly rounded and wider than at base, then strongly obliquely attenuate to the tips, which are conjointly broadly rounded and obsoletely serrulate; humeri well developed; each elytron with a deep, broad basal depression, and without a lateral carina; surface with distinct rows of shallow, feebly defined punctures, which are larger at the base but gradually becoming smaller toward the apex, where they are nearly obsolete, the bottom of each puncture is obsoletely granulose, with a short inconspicuous cinereous hair arising from the center; intervals smooth on disk, becoming feebly rugose at the sides, especially in the humeral regions. Abdomen beneath strongly convex, sparsely and rather obsoletely punctate, the punctures very shallow, rounded, open on the one side, larger and more closely placed on the first segment, but becoming very small on the last one, each puncture bearing a short recumbent cinereous hair; intervals finely and obsoletely reticulate; last segment broadly rounded at apex, with the apical groove following the outline of the lateral margin, but not extending to it. Prosternum densely and finely reticulate-punctate. Front and middle tibiae moderately arcuate.

Length, 3.5 mm.; width, 1.35 mm.

Type locality.—Montserratt, Trinidad, West Indies.

Type and paratypes.—Cat. No. 26816, U.S.N.M.

Described from four specimens collected by August Busck, two of which were collected at the type locality, June 28 and 29, one at Port

of Spain, Trinidad, June 19, and the other one simply labeled "Trinidad, W. I. June."

This species can be distinguished from all the other species of this genus described from the West Indies by the shape of the pronotum, which is widest at the base and slightly wider than the base of the elytra. It resembles somewhat *aeneocollis* Fisher and *tenuis* Fisher, but it is much broader in proportion to its length than either of these two species.

TAPHROCERUS ELEGANS, new species

Male.—Elongate, strongly attenuate posteriorly, moderately convex and strongly flattened above; head with the occiput and vertex cupreous, front green; pronotum cupreous anteriorly, becoming oliveaceous toward the base; scutellum dark green; elytra dark shining green at base, becoming a dull bronzy color and strongly opaque on the apical two-thirds, and without pubescent spots; beneath piceous with a strong aenous tinge.

Head nearly as wide as pronotum at base, and when viewed from above is transversely truncate in front, with a feeble emargination at the middle; and broadly flattened behind the epistoma, causing two obsolete gibbosities on the front, with a longitudinal groove extending from the occiput to the transverse flattened area behind the epistoma, the groove obsolete on the occiput, but becoming deeper and broader on the front, which is wide, with the sides more widely separated above than in front, and nearly flat between the eyes; surface finely and densely granulose, with a few moderately deep punctures intermixed, the punctures becoming denser and more confused behind the epistoma, where the surface is also sparsely clothed with short cincereous hairs; eyes large, oval, about equally rounded at both ends, strongly convex and feebly projecting; epistoma flat, and deeply, arcuately emarginate in front. Pronotum moderately convex, nearly two times as wide as long, apex and base about equal in width, widest at about the basal third; sides when viewed from above are obliquely dilated to the basal third, then abruptly narrowed, and arcuately emarginate to the posterior angles, which are rather obtuse; anterior margin broadly arcuate; base transversely truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is feebly, arcuately emarginate: surface with a narrow transverse depression along the anterior margin, connected at each side to a broad concave depression along the lateral margins, which extends to the posterior angles and then transversely along the base, these depressions causing the surface to be broadly gibbous on the disk, sparsely, irregularly ocellate-punctate, the punctures nearly obsolete on the disk, but becoming denser and larger in the depressed areas, sparsely clothed with a few incon-

spicuous, recumbent, cinereous hairs; intervals finely and very densely granulose. Scutellum triangular, feebly rounded in front, with the surface obsoletely granulose. Elytra moderately convex, strongly flattened on top, distinctly wider than pronotum at base; humeral angles obtusely angulated; sides strongly arcuately concave from the humeral angles to the middle, where they are broadly rounded and slightly wider than at base, then rather strongly, obliquely attenuate to the tips, which are conjointly broadly rounded, and obsoletely serrulate; humeri well developed; each elytron with a deep, rather broad basal depression and without a lateral carina; surface with distinct rows of punctures, which are large and rather deep at the base, but gradually becoming smaller toward the apex, where they are nearly obsolete, sparsely clothed with a few very short, inconspicuous cinereous hairs, which tend to form longitudinal rows, and are only noticeable on the opaque area; intervals finely and densely granulose, except for a transverse area at apical third, where the surface is more shining, the apical two-thirds so densely granulose that the surface is strongly opaque. Abdomen beneath strongly convex, sparsely and rather coarsely punctate, the punctures shallow, oblong, and open on the one side, each puncture bearing a very short recumbent cinereous hair; intervals densely and obsoletely reticulate; last segment broadly rounded at apex, with the apical groove more acutely rounded than apex, and extending to the lateral margins. Prosternum finely and densely rugose. Front and middle tibiae strongly arcuate.

Length, 3.5 mm.; width, 1.4 mm.

Type locality.—El Yunque, Porto Rico.

Type.—Cat. No. 26818, U.S.N.M.

Described from a single male example received from G. N. Wolcott of the Porto Rico Experiment Station and which was collected at El Yunque, Porto Rico, by R. T. Cotton, March 23, 1917. El Yunque is a mountain 3,790 feet high, in the northeastern part of the island, between Mameyes and Fajardo.

TAPHROCERUS AENEOCOLLIS, new species

Form elongate, subcylindrical, strongly attenuate posteriorly, moderately convex above, and feebly shining; head and pronotum dark olivaceo-aeneous; elytra piceous, without pubescent spots; beneath piceous, with a feeble aeneous tinge.

Head slightly narrower than pronotum at base, and when viewed from above is transversely truncate, with a longitudinal groove extending from the occiput to a somewhat flattened transverse area in front of epistoma, the groove obsolete on the occiput, but becoming more broadly and deeply impressed on the front, which is wide, with

the sides more widely separated above than in front, and feebly convex between the eyes; surface finely and densely granulose, with a few large, shallow, irregularly placed punctures intermixed, sparsely clothed with a few very short cinereous hairs behind the epistoma; eyes large, oval, more acutely rounded beneath than above, rather strongly convex, but only feebly projecting; epistoma flat, and rather narrowly and deeply arcuately emarginate in front. Pronotum moderately convex, nearly two times as wide as long, apex and base about equal in width, widest at about the middle; sides when viewed from above are regularly arcuate; anterior margin nearly truncate; base transversely truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is feebly arcuately emarginate; surface with a narrow transverse depression along anterior margin, connected on each side to a broad depression at lateral margin, this depression extending obliquely backward and becoming nearly obsolete at base, and not extending transversely in front of scutellum, surface with a few scattered ocellate punctures, from the center of which arises a short inconspicuous cinereous hair; intervals finely and densely reticulate. Scutellum triangular, feebly rounded in front, with the surface obsoletely reticulate. Elytra moderately convex, slightly wider than pronotum at base; humeral angles obtusely angulated; sides strongly arcuately concave from the humeral angles to the middle, where they are about equal in width to the base, then strongly obliquely attenuate to the tips, which are conjointly broadly rounded and feebly serrulate; humeri well developed; each elytron with a rather shallow, broad basal depression, and without a lateral carina; surface with distinct rows of shallow, feebly defined punctures, which are obsoletely granulose at the bottom and from the center of which arises a short, inconspicuous, cinereous hair, the punctures larger at the base but becoming gradually smaller toward the apex, where they are nearly obsolete; intervals feebly rugose at the sides, but becoming smoother on the disk. Abdomen beneath moderately convex, sparsely and rather obsoletely punctate, the punctures very shallow, oblong, open on the one side, larger and more closely placed on the first segment, but becoming small and indistinct on the last one, each puncture bearing a short recumbent cinereous hair; intervals finely and obsoletely reticulate; last segment broadly rounded at apex, the apical groove following the outline of lateral margin but not extending to it. Prosternum finely and densely reticulate-punctate. Front and middle tibiae moderately arcuate.

Length, 3 mm.; width, 1 mm.

Type locality.—Trinidad, West Indies.

Type and paratype.—Cat. No. 26817, U.S.N.M.

Described from two specimens collected by August Busck. The type is labeled "Trinidad, W. I., June," and the paratype "Port of Spain, Trinidad, June 19."

The species is closely allied to *subglaber* Fisher, but can be easily distinguished from that species by the shape of the pronotum, which is widest at about the middle and arcuately rounded, while in *subglaber* it is obliquely dilated to the base, where it is the widest. It might also be confused with *tenuis* Fisher, but that species has a distinct lateral carina on the elytra.

TAPHROCERUS AENEOCUPREUS, new species

Form rather broadly elongate, strongly attenuate posteriorly, moderately convex above, shining, uniformly aeneous, with a slight cupreous tinge in certain lights, and without pubescent spots: beneath more olivaceo-aeneous than above.

Head slightly narrower than pronotum at base, and when viewed from above is transversely truncate in front, with an obsolete longitudinal groove, which is shallow and broad near the epistoma, but becoming very narrow and resembling a carina on the vertex and occiput; front wide, with the sides nearly parallel and very feebly convex between the eyes; surface densely, coarsely granulose, coarsely and sparsely punctate, the punctures very shallow and distinctly separated, and clothed with a few very short, cinereous hairs; eyes large, elongate, more acutely rounded beneath than above, strongly convex, and slightly projecting; epistoma slightly elevated and broadly arcuately emarginate in front.

Pronotum moderately convex, two times as wide as long, apex and base nearly equal in width, widest at apical third; sides when viewed from above are strongly obliquely expanded from the anterior margin to apical third, then obliquely attenuate to the posterior angles, which are obtusely angulated; anterior margin obsolete rounded; base truncate to middle of elytron, then turning obliquely backward to the scutellum, in front of which it is rather deeply arcuately emarginate; surface with a narrow, shallow, transverse depression along the anterior margin, and with a broader transverse depression behind the middle, connected on each side to the anterior depression, the surface with a few coarse widely separated punctures, from the center of which arises a short inconspicuous cinereous hair, the intervals finely and densely granulose. Scutellum triangular, rounded in front, acuminate behind, and with the surface finely, densely granulose. Elytra moderately convex, slightly wider than pronotum at base; humeral angles obtusely angulated; sides strongly sinuate from the humeral angles to middle, where they are broadly rounded and about equal in width

to the base, then obliquely attenuate to the tips, which are separately narrowly rounded and finely serrulate; humeri well developed; each elytron with a broad and rather deep basal depression, but without a lateral carina; surface with indistinct rows of coarse, shallow punctures, the punctures rather distinct on basal area, but becoming more indistinct toward the apex; intervals densely, coarsely granulose, more or less rugose, and clothed with a few short recumbent cinereous hairs, which are more numerous in the apical region. Abdomen beneath moderately convex, coarsely and sparsely punctate, the punctures very shallow, oblong, and open posteriorly, each puncture bearing a very short recumbent cinereous hair; intervals densely and obsoletely reticulate; last segment narrowly flattened and truncate at apex, with the apical groove deep and following the outline of the lateral margin, but not extending to it. Prosternum coarsely and densely reticulate. Front and middle tibiae slightly arcuate, the posterior pair nearly straight.

Length, 4 mm.; width, 1.25 mm.

Type locality.—Cayamas, Cuba.

Type and paratype.—Cat. No. 26819, U.S.N.M.

Described from two specimens collected by E. A. Schwarz, February 28.

This is one of the largest West Indian species, and is of a uniformly bronzy-coppery color above. It is allied to *laesicollis* Chevrolat, but can be separated from that species by the absence of the longitudinal lateral carina on the elytra.

TAPHROCERUS TIMIDUS Chevrolat

Taphrocerus timidus CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, pp. 587–588 (separates pp. 163–164).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 171, No. 1053.

Form elongate, subcylindrical, strongly attenuate posteriorly, moderately convex above, and rather shining; above uniformly piceous, with a distinct aeneous tinge, and without pubescent spots; beneath slightly less aeneous than above.

Head slightly narrower than pronotum at base, and when viewed from above is broadly rounded in front, with a narrow, feebly impressed longitudinal groove, extending from the epistoma to the vertex, but becoming obsolete on the occiput; front wide, with the sides more widely separated above than in front and feebly convex between the eyes; surface densely and rather coarsely granulose, coarsely, densely punctate, the punctures shallow and distinctly separated, and clothed with a few very short cinereous hairs; eyes elongate, more acutely rounded beneath than above, nearly flat and not projecting; epistoma flat and rather narrowly and deeply arcately emarginate in front. Pronotum moderately convex, one and

one-half times as wide as long, apex and base about equal in width, widest at basal third; sides when viewed from above are feebly obliquely expanded from anterior margin to basal third, then abruptly constricted and parallel to the posterior angles, which are rectangular; anterior margin nearly truncate; base truncate to middle of elytron, then feebly oblique to the scutellum, in front of which it is truncate or feebly emarginate; surface with an obsolete transverse depression along the anterior margin, connected on each side to a broad depression at lateral margin, and then extending obliquely backward and connected to a broad transverse depression along the base, the surface rather coarsely and densely punctate, the punctures shallow, distinctly separated, and from the center of each arises a very short cinereous hair, the intervals rather coarsely and densely granulose. Scutellum subtriangular, truncate or feebly rounded in front, broadly rounded behind, and with the surface finely, densely granulose. Elytra moderately convex, slightly wider than pronotum at base; humeral angles obtusely angulated; sides strongly sinuate from humeral angles to middle, where they are broadly rounded and about equal in width to the base, then obliquely attenuate to the tips, which are conjointly broadly rounded and obsoletely serrulate; humeri well developed; each elytron with a broad and rather deep basal depression and without a lateral carina; surface with indistinct rows of shallow, irregularly placed stelliform punctures; intervals more or less rugose and clothed with a few short recumbent cinereous hairs. Abdomen beneath strongly convex, sparsely and coarsely punctate, the punctures shallow, open posteriorly, equally distributed over the first two segments, but on the posterior three segments they are arranged along the posterior margin, and each puncture bearing a short recumbent cinereous hair; intervals finely and coarsely reticulate; last segment broadly rounded at apex, with the apical groove deep, and following the outline of the lateral margin but not extending to it. Prosternum finely and densely reticulate. Front and middle tibiae slightly arcuate, the posterior pair straight.

Length, 3 mm.; width, 1 mm.

This species was described by Chevrolat from the central part of Cuba from material in the collections of Gundlach, Poey, and Chevrolat, and he writes that the insect is found on a species of rushes. Gundlach (1891) records collecting it on one of the rushes (*Juncus*, species) at Cienago de Zapata, Cuba.

The following Cuban material has been examined, and from which the above description was made. Coll. Amer. Mus. Nat. Hist.: One specimen from Cuba, collected 7 kilometers north of Viñales, September 16–24, 1913, by F. E. Lutz, the vegetation consisting of grasses and weeds (largely *Solanum* and *Bidens*) of pasture and

roadside in dry places. Coll. U. S. Nat. Mus.: One specimen received from S. C. Bruner labeled "Nagua, Oriente," collected July 7, 1922, by C. H. Ballou. No specimens of this species have been found in the Poey collection in Philadelphia, but Mr. Bruner reports that there is a single example labeled No. 1053 in the Gundlach Museum in Habana, but this specimen has not been examined by the writer.

Genus LEIOPLEURA H. Deyrolle

Leiopleura H. DEYROLLE, Ann. Soc. Ent. Belg., vol. 8, 1864, p. 219.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 328-330.

Head narrow, declivous in front, moderately convex behind, and with the front grooved; epistoma broadly emarginate in front, narrow and elongate between the antennal cavities; antennal cavities large and nearly contiguous and extending almost to interior margin of the eyes. Antennae short and slender; first and second joints short and thick, the first slightly longer than the second; third to fifth elongate, very slender, and subequal in length to each other; the following joints abruptly dentate on the inner side, and armed with terminal poriferous fovea. Eyes moderately large, suboval, and parallel on the inner margin. Pronotum wider than long, narrower in front than behind; disk convex; sides impressed, with the margin sinuate or arcuate; base frequently depressed, strongly bisinuate, with a large median lobe. Scutellum large and triangular. Elytra broad, strongly convex, often strongly impressed at the sides behind the humeri, strongly attenuate posteriorly to the apex, which is separately or conjointly rounded. Sternal cavity formed by the mesosternum and metasternum, the lateral branches of the former invisible. Metasternum broadly emarginate or truncate in front. Prosternum with a deep oblique groove at the sides for the insertion of the antennae while in repose; anterior margin sometimes with a median lobe; prosternal process usually very broad, and broadly rounded at apex, and not constricted by the coxal cavities. Middle coxae a little more widely separated than the anterior ones; posterior coxae dilated internally, narrowest at middle, and feebly dilated externally. Legs rather robust and not lodged in depressions beneath; femora feebly swollen; tibiae slender, subcylindrical and nearly straight, the anterior and median ones feebly arcuate; tarsi very short and the joints nearly subequal in length; tarsal claws dentate at base. Body elliptical or oval, more or less elongate, and very convex above.

This genus was erected by Deyrolle and placed in his table for separating the genera of Malaysian *Trachytes*, without giving a further description, but in a footnote gives the following: "Type

due genre, *Brachys concinna* Gory, etc." The species of this genus are very numerous, and their distribution has been confined to the warmer parts of Mexico, Central and South America, with the exception of one species, which has been described from the West Indies.

LEIOPLEURA COMPACTILIS Chevrolat

Leiopleura compactilis Chrevolat, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 588 (separates p. 164).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, pp. 171–172, no. 862.

The following is a translation of Chevrolat's original description:

Broad, short, and cupreous; head rounded, convex, green and deeply sulcate in its entire length; antennae black; eyes large, somewhat oblong and luteous; thorax pale cupreous, distinctly punctulate, attenuate anteriorly, straight, at vertex arcuate, within slightly margined and sulcate, posteriorly broader, broadly biarcuate, and truncate in front of scutellum, sides deflexed and rounded, the four angles shortly prominent; scutellum triangular and aeneous; elytra aureous (quadrilateral in form), parallel, margins reflexed, then toward the apex conjointly angularly and obtusely produced, at middle of the base transversely reflexed, beyond the middle semi-circularly elevated, and posteriorly transversely depressed, strongly and almost regularly punctate; body beneath and legs cupreous. Length, 3.5 mm.; width, 2 mm. Cuba, in the central region. Collections of Gundlach and Poey.

Gundlach (1891) records collecting it at Guamacaro, between Matanzas and Cardenas, Cuba.

The species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 862 in the Gundlach Museum in Habana, which has not been available for study.

Genus PARADOMORPHUS Waterhouse

Paradomorphus WATERHOUSE, Trans. Ent. Soc. London, 1887, p. 183; Biol. Centr. Amer. Coleopt., vol. 3, pt. 1, 1889, pp. 51–57.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 263–264.

Head more or less tuberculate, front grooved; epistoma emarginate in front and strongly narrowed by the antennal cavities; antennal cavities large, elliptical, oblique and placed at some distance from the eyes; cheeks armed with a short, acute tooth. Antennae 11-jointed, not received in a groove in prosternum while at rest, moderately long, and serrate from the fourth or fifth joint, the serrate joints armed with terminal poriferous foveae. Eyes rather large, oblong, strongly convex, parallel on the inner margin (sometimes a little more widely separated in front than on occiput). Pronotum more or less uneven; bisinuate in front, with the median lobe rounded; sides more or less sinuate and arcuate; base strongly bisinuate, with a distinct median lobe. Scutellum large, triangular, truncate in front and acuminate behind; surface transversely carinate. Elytra

elongate, lobed at base, apex rounded or acuminate; humeri prominent. Sternal cavity formed by the metasternum, and mesosternum, the former arcuately emarginate in front. Mesosternum divided, the lateral branches short and scarcely visible. Prosternum wide in front, attenuate behind, and the anterior margin with a distinct lobe. Middle coxae not more widely separated than the anterior ones. Posterior coxae short, slightly dilated internally, narrowest at middle, and strongly dilated anteriorly at the lateral margin. Abdomen not distinctly visible from above, first and second segments united. Legs slightly robust; femora fusiform, the anterior and median ones dentate on the inner margin; anterior and median tibiae feebly arcuate, the posterior ones straight; tarsi more or less elongate and compressed, the joints armed with distinct lamellae, first joint of posterior pair as long or longer than the following three joints united; tarsal claws dentate, appendiculate or bifid. Body oblong, elongate, and slightly attenuate posteriorly.

Waterhouse has erected this genus for *Agrilus frontalis* Castelnau and Gory, and allied species, which differ from *Agrilus* in having the basal joint of the posterior tarsi comparatively short, but this seems to be a variable character as intermediate forms exist, and in a large series of species the two genera will run together. Kerremans in his classification of this family has retained *Paradomorphus* as a valid genus for the species having the anterior and middle femora finely dentate on the inner margin.

The species of this genus is widely distributed throughout Mexico, Central America, and the northern part of South America, but so far only one species has been found in the West Indies.

PARADOMORPHUS ALBICOLLIS Waterhouse

Paradomorphus albicollis WATERHOUSE, Trans. Ent. Soc. London, 1887, p. 184.

Elongate, broadly rounded in front, feebly attenuate behind, and only slightly narrower behind than in front, subopaque; head black, with bluish and cupreous reflections; pronotum entirely covered with a dense white tomentose, which conceals the surface sculpture; elytra piceous, cyaneo-aeneous at base, more strongly aeneous at lateral sides near middle, and with strong cyaneous reflections posteriorly; each elytron ornated with cinerous pubescence as follows: Three small irregular spots on the disk, the spots arranged in a straight line between the suture and longitudinal costa, the first rather obsolete just behind the scutellum, a larger one at basal third, and a similar one just behind the middle, there is also a narrow zig-zag fascia at apical third extending from the lateral margin slightly forward, then turning obliquely backward, and finally a little transverse, but not reaching the suture; there is also a broad white tomen-

tose fascia extending from suture to lateral margin and separated from apex by an narrow glabrous area; beneath piceous, with a purplish and aeneous reflection.

Head feebly convex; with four round nodules, two on the occiput and two on the front, the anterior ones strongly cupreous, the front longitudinally grooved from occiput to epistoma; surface sparsely punctate, the punctures rather deep and becoming somewhat confused behind the epistoma, the intervals nearly smooth; epistoma slightly wider than the antennal cavities and broadly arcuately emarginate in front. Antennae extending to about the middle of pronotum; first joint short and feebly arcuate; second feebly clavate, and slightly shorter than the first; third and fourth cylindrical, slightly shorter and more slender than the second, and subequal in length; following joints strongly triangular. Pronotum evenly convex, one and one-third times as wide as long at middle, slightly narrower in front than behind, widest at about middle; sides broadly, arcuately rounded; posterior angles nearly rectangular; anterior margin bisinuate, with a broadly rounded median lobe; base nearly truncate to elytral lobe, then turning obliquely backward, and broadly truncate in front of scutellum. Scutellum finely and densely granulose. Elytra about as wide as pronotum at base; sides feebly expanded behind humeral angles, which are obtusely rounded, feebly sinuate to behind middle, where they are broadly rounded, then obliquely attenuate to the tips, which are separately, broadly rounded, and finely dentate; humeri strongly elevated; surface broadly impressed at base, with an obsolete, irregular costa on each elytron, densely but not very deeply punctate, and strongly transversely rugose, besides the cinereous pubescent designs, the surface is also sparsely clothed with inconspicuous black hairs. Abdomen strongly convex, sparsely and finely punctate, the punctures shallow and connected transversely by shallow, sinuate striae, the striae and punctures much coarser at sides of basal segment and from each puncture arises a short recumbent hair, and with a conspicuous white tomentose spot on the sides of the third and fifth segments; intervals finely, obsoletely granulose; last segment broadly rounded at apex. Prosternum feebly, transversely rugose, and densely granulose; prosternal lobe broad, with the anterior margin broadly, arcuately emarginate, and broadly rounded on each side of the emargination; prosternal process nearly flat, feebly attenuate posteriorly, and broadly rounded at apex. Tarsal claws with a broad, obtuse tooth at base.

Length, 8.5 mm.; width, 2.3 mm.

This species was described from Jamaica by Waterhouse and is slightly larger ($9\frac{1}{2}$ mm.) than the one examined by the writer. The above description was made from a specimen kindly loaned by the British Museum and simply labeled "Jamaica."

Genus AGRILUS Curtis

Agrilus CURTIS, British Entomology, vol. 2, 1825, No. 67.—STEPHENS, Illustr. British Ent., vol. 3, 1830, pp. 239–241, pl. 19, fig. 2.—ESCHSCHOLTZ, Zool. Atlas, vol. 1, 1829, p. 9 (reprint, p. 8).—SOLIER, Ann. Soc. Ent. France, ser. 1, vol. 2, 1833, pp. 300–303, pl. 12, fig. 24.—CASTELNAU and GORY, Mon. Bupr., vol. 2, 1838, pp. 1–70, pls. 1–15.—LACORDAIRE, Gen. Col., vol. 4, 1857, pp. 83–84.—HORN, Trans. Amer. Ent. Soc., vol. 18, 1891, pp. 277–336, pl. 8.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 266–292.

Head vertical, and quite variable, grooved, flat, tuberculate or simply convex behind; epistoma emarginate in front and narrowed by the antennal cavities, cheeks unarmed or with an obtuse tooth on each side; antennal cavities rather large, oblique and prolonged into a groove in front and situated at some distance from the eyes. Antennae variable, often short, and dentate from the fourth or fifth joint, and not inserted in a groove in the prosternum while in repose; first joint rather elongate and robust; second, third, and sometimes the fourth short and feebly clavate; the following joints triangular, dentate on the inner side, and armed with a terminal poriferous fovea. Eyes large, oval, parallel on the inner margin (sometimes a little more widely separated in front than on occiput). Pronotum wider than long, rather convex, broadly emarginate or bisinuate in front; sides more or less arcuate, with two distinct margins, the inner one abbreviated and joined to the outer one posteriorly; base bisinuate, with a broad median lobe, more or less truncate, rounded or emarginate in front of scutellum; surface with or without impressions, and sometimes with a distinct lateral carina near posterior angles. Scutellum broad, acute posteriorly, and sometimes transversely carinate. Elytra elongate, sinuate at base, with or without longitudinal costae; humeri prominent; sides sinuate, and often not covering the sides of the abdomen; apex very variable, sometimes expanded, acute, broadly rounded, or strongly dentate. Sternal cavity formed by the metasternum and mesosternum, the former arcuately emarginate in front. Mesosternum divided, the lateral branches very short. Prosternum wide, and more or less lobed in front; anterior margin truncate, rounded or emarginate; prosternal process broad, with the apex acute, truncate, rounded or expanded. Middle coxae not more widely separated than the anterior ones; posterior coxae short, slightly dilated internally, narrowest at middle, and strongly dilated anteriorly at the lateral margin. Abdomen sometimes visible from above. Legs slender; femora fusiform, not dentate on inner margin, and frequently more strongly swollen in the male than female; tibiae slender and subcylindrical, the anterior ones sometimes ciliate; tarsi long and slender, and the joints armed with distinct lamellae, first joint of posterior pair as long or longer than

the following three joints united; tarsal claws bifid or dentate. Body elongate, feebly convex, broadly rounded in front, and acuminate behind.

This is a very large genus containing over 1,000 described species which are distributed throughout the entire world, with the exception of the extreme northern parts. The species of this genus seem to be rare in the West Indies, as only two have been described from that region, and the specimens are extremely rare in collections.

AGRILUS DOMINICANUS Thomson

Agrilus dominicanus Thomson, Typi Buprestidarum, 1878, pp. 88-89.

Elongate, rather robust, broadly rounded in front, strongly attenuate behind, and distinctly wider in front than behind, olivaceous-green, with cupreous and purplish reflections in certain lights, the cupreous tinge more pronounced on the head and pronotum; beneath aeneous, with a strong purplish tinge.

Head broadly but not very deeply concave, the concavity deeper and narrower on the vertex, becoming broader on the front and extending to the epistoma and transversely to the margin of the eyes, the margins parallel on the front and strongly constricted on the vertex; surface coarsely, irregularly rugose, becoming coarsely punctate on the occiput, with a narrow smooth carina along the margin of the eyes, rather densely clothed with moderately long, wide, recumbent fulvous hairs, having a tendency of forming denser spots on the front; intervals finely and densely granulose; epistoma wider than long, about two times as wide as the antennal cavities, separated from the front by a transverse arcuate carina, deeply and broadly arcuately emarginate in front, with the surface finely granulose; eyes feebly reniform, moderately convex, and two times as long as wide. Antennae extending to about the middle of pronotum, and serrate from the fourth joint. Pronotum rather evenly convex, one and one-third times as wide as long, about equal in width at base and apex, slightly narrower at basal fifth; sides nearly parallel, with a feeble sinuation near the base, and not explanate; lateral marginal edge sinuate when viewed from the side, and the two margins uniting near basal third; anterior margin arcuately emarginate, with a broadly rounded median lobe; base truncate to elytral lobe, then abruptly emarginate and turning obliquely backward to the scutellum, in front of which it is broadly truncate; posterior angles rectangular, with a rather broad, strongly sinuate carina extending to the apical angles; surface with a broad, moderately deep longitudinal median impression extending from the anterior margin to scutellum, and on the inner side of the lateral carina, a very sinuate impression extending from base to the anterior margin, the surface is also coarsely, transversely, and irregularly strigose; intervals finely and densely granulose, with a few fine punctures along the strigae, the

punctures becoming closer toward the sides, and sparsely clothed with a few inconspicuous fulvous hairs in the impressions. Scutellum very broad, with a sharply defined transverse carina, and the surface rather coarsely and densely granulose. Elytra slightly wider than pronotum at base, nearly parallel to basal fifth, feebly sinuate to behind middle, where they are broadly emarginate, then obliquely attenuate to the tips, which are separately broadly rounded, and strongly dentate, the teeth well separated; sides of abdomen narrowly visible from above; each elytron feebly flattened along sutural margin, rather broadly, deeply impressed at base, and with a distinct sinuate and broadly rounded costa extending from the humeri to apex; humeri moderately elevated; surface densely, irregularly, but not very deeply punctate, somewhat rugose at the sides and basal region, and very sparsely clothed with short, inconspicuous fulvous hairs. Abdomen beneath strongly convex, rather densely punctate, the punctures rather shallow and widely separated at the middle, but becoming coarser and somewhat rugose at the sides; rather densely clothed with short, recumbent, cinereous and fulvous hairs, the hairs long and erect at the apex; intervals finely and densely granulose; first segment convex, not impressed nor more pubescent than rest of abdomen; last segment broadly rounded at apex; vertical portions of segments only sparsely pubescent; pygidium not carinate. Prosternum coarsely and rather densely punctate, sparsely clothed with recumbent cinereous hairs, and the intervals finely granulose; prosternal lobe long, declivous and broadly arcuately rounded in front; prosternal process broad, flat, strongly expanded behind coxal cavities, then obliquely attenuate to the apex, which is rather broadly rounded. Posterior tarsi three-fourths as long as the tibiae; first joint as long as the following three joints united; anterior and middle tibiae slightly arcuate, with a feeble mucro at the inner apex, the posterior pair simple; tarsal claws divergent, with a small tooth at base, which is not turned inward.

Length, 11.5 mm.; width, 3 mm.

This species was described in a short description by Thomson from Santo Domingo and seems to be rare in collections. The only specimen examined by the writer which agrees very well with Thomson's description for this species, and from which the above description was made, is in the collection of the American Museum of Natural History at New York. This specimen was collected at Rio Seco, San Carlos Estate, Guantanamo, Cuba, on June 16, 1916, by Chas. T. Ramsden. There is a single example of this species in the British Museum which has not been examined by the writer.

The species is closely allied to *macer* LeConte, from the United States, but differs from it in having the pronotum longitudinally

impressed from base to anterior margin, disk more finely rugose and granulose, the lateral carina extending to the apical angles, and the prosternal process strongly expanded behind the coxal cavities.

AGRILUS DENTICORNIS Chevrolat

Agrilus denticornis CHEVROLAT, Ann. Soc. Ent. France, ser. 4, vol. 7, 1867, p. 586 (separates p. 162).—GUNDLACH, Contribucion à la Entom. Cuba, vol. 3, pt. 5, 1891, p. 170, No. 959.

The following is a translation of Chevrolat's original description:

Form of *Agrilus geminata* Say, linear, granulose and dark violaceous; head densely punctate, vertex truncate, moderately convex and bronzy-green; frontal sulcus transversely impressed posteriorly, antennae attaining the base of thorax, slender and black, joints 5 to 10 angulated (5 to 8 triangular); thorax just as wide as long, in front straight, disk arcuate, base exteriorly strongly sinuate, at sides arcuately dilated, with the margins deplanate, above deeply fossulate, disk longitudinally convex and densely transversely granulose; scutellum transversely reflexed; elytra granulose, parallel, separately rounded, apex denticulate, base impressed, at humeri reflexed; wings violaceous; legs slender and black; body beneath bright cupreous, densely and lightly punctate. Length, 4.5 mm.; width, 1 mm. Cuba, from central part of the island. Collections of Gundlach and Poey.

This small species rather approaches by its form to our slender species from Europe.

Gundlach (1891) records collecting in the Cienago de Zapata, Cuba. The species is not represented in the Poey collection in Philadelphia, but there is a single example labeled No. 959 in the Gundlach Museum in Habana, which has not been available for study.

Genus MICRASTA Kerremans

Micrasta KERREMANS, Ann. Soc. Ent. Belg., vol. 37, 1893, p. 115; Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 333-334.

Head feebly convex, with a feeble longitudinal groove; epistoma rather elongate and feebly emarginate in front; antennal cavities small, rounded and situated close to the inner margin of the eyes. Antennae short, glabrous, and dentate from the fourth joint; first and second joints thick, the first slightly longer than second; third small; the following joints triangular, (except sometimes the apical joint), dentate on the inner side, and armed with a terminal poriferous fovea. Eyes moderately large, oval, feebly projecting, and parallel on the inner margin. Pronotum wider than long, strongly convex; anterior margin arcuately emarginate; sides arcuately rounded; base transversely truncate. Scutellum very small and subtriangular. Elytra very convex, truncate, and transversely impressed at base; sides parallel in front and broadly rounded behind. Sternal cavity formed entirely by the metasternum, the mesosternum

invisible. Metasternum broadly truncate in front. Prosternum wide and flat; anterior margin truncate; prosternal process rectangular and truncate at apex. Middle coxae not more widely separated than the anterior ones, the posterior pair nearly rectangular, feebly dilated internally and externally. Legs feebly robust and not contractile; femora feebly swollen at middle; tibiae slender, straight, and subcylindrical; tarsi very short; tarsal claws broadly toothed at base. Body oblong, subcylindrical, and equally rounded in front and behind.

This genus was erected by Kerremans (1893) for a number of species from Brazil. Obenberger (1917) described two species from Guadeloupe, neither of which has been examined by the writer.

MICRASTA GYLEKI Obenberger

Micrasta gyleki OBENBERGER, Entomol. Blätter, vol. 13, 1917, p. 90.

The following is a translation of Obenberger's original description:

Habitat: Guadeloupe.

Length: 2-2.7 mm.

Beautiful golden-bronzy color. Head convex, the surface shagreened, moderately, strongly, sparsely, somewhat finely striate, uniformly punctate. Middle of front with a small, round impression. Eyes situated in the same curve with the front. Antennae long, filiform, black, and extending beyond the base of prothorax.

The proportional length of the single joints:

I.=3; wide, conical, about two times as long as the width at apex.

II.=2; like I, apical part broad, nearly spherical.

III.=1; very short, about two times as slender as II, and as long as wide.

IV.=3; long, triangular, about two times as long as wide.

V.= $2\frac{1}{2}$; as wide as the IV.

VI.=2; as wide as the IV.

VII.=Same as VI.

VIII.=Same as VI.

IX.= $1\frac{3}{4}$; long, fusiform.

X.=Same as IX.

XI.=2; long, acuminate.

The prothorax one and one-half times as wide as long at the middle; anterior margin feebly arcuately emarginate; sides expanded at apical third, anteriorly strongly rounded, and posteriorly very feebly arcuately narrowed; posterior angles acutely rectangular; laterally with a small, very sharp, acute, emarginate, marginal line; when viewed laterally this line is entire and straight; under this line there is a submarginal line, which is somewhat obliquely placed, inclined toward the hind angles and converging with the marginal line. The entire upper side of the prothorax is shagreened, sparsely, somewhat finely striate, moderately strongly punctured; some of the punctures are finely transversely confluent with each other. Base almost truncate, the posterior angles slightly produced outward. Scutellum

somewhat longer than wide, triangular, and shagreened. Elytra wide, moderately, strongly, obliquely convex, parallel to apical fourth, then broadly conjointly rounded, two times as long as wide, strongly shining and not shagreened, everywhere (nearly as strongly as on the prothorax) simply punctate. Legs bronzy, and the tarsi dark brown.

This magnificent, charming little species, the first species of this genus from the Antilles, I have received from my highly honored friend and fellow traveler, Mr. Gylek, president of the Wiener Coleopt. Society. I beg leave to name this pretty, new species after my friend, who has always offered assistance in my studies with his entomological material.

MICRASTA PYGMAEOLA Obenberger

Micrasta pygmaeola OBENBERGER, Entomol. Blätter, vol. 13, 1917, p. 91.

The following is a translation of Obenberger's original description:

Habit: Guadeloupe.

Length: 2 mm.

Head and prothorax blue, elytra of a golden-bronzy color, antennae and femora blackish, the tibiae and tarsi yellow.

Head with a dimple-like depression in the middle, convex, smooth, shining, and not shagreened, everywhere sparsely, moderately, strongly, and simply punctate. Antennae long, reaching almost to the base of prothorax; each joint, beginning at the third, is serrate and expanded. Prothorax one and one-third times as wide as long, convex, and in front and at base evenly truncate; at the middle the sides are expanded, from there (at the front somewhat stronger than at the base) anteriorly and posteriorly arcuately narrowed. Above convex, shining, not shagreened, simply, moderately, densely, but not too strongly punctate, similar to that on the head. Elytra somewhat more than two times as long as wide, parallel, shining, densely, moderately, strongly, simply punctate, everywhere with feebly distinct, very short, whitish hairs (this pubescence not very distinct, and only visible with a very strong lens). Elytra parallel to the apical third, then broadly rounded to the tips, which are conjointly rounded. The dorsal part of the abdomen which is covered by the elytra is dark bronzy-green, otherwise the part is yellow.

This pretty little species is separated from *gyleki* by the color, and the upper side not shagreened, the color of the tarsi, the different form of the prothorax, etc.

Genus MASTOGENIUS Solier

Mastogenius SOLIER, Gay's Hist. Nat. Chile, Zool., vol. 4, 1851, pp. 507-508.—

LACORDAIRE, Gen. Col., vol. 4, 1857, p. 85.—KERREMANS, Wytsman's Gen. Insectorum, fasc. 12, pt. 4, 1903, pp. 332-333.

Haplostethus LECONTE, Trans. Amer. Philos. Soc., new ser., vol. 11, 1859, pp. 253-254.

Head regularly convex, with or without a feeble longitudinal groove; epistoma moderately wide between the antennal cavities and

arcuately emarginate in front; antennal cavities large, triangular, and extending to the inner margin of the eyes. Antennae rather long, and dentate from the fourth joint; first and second joints thick, the first slightly longer than the second, which is globular; third elongate and more slender than the second; the following joints elongate, triangular, wider in front, dentate on the inner side, and armed with a terminal poriferous fovea. Eyes rather large, oval, partially covered by the pronotum, a little oblique, and slightly closer together on the occiput than at the bottom of front. Pronotum wider than long, convex; anterior margin arcuately emarginate; sides arcuately rounded, with a lateral carina parallel to the anterior margin, which is not visible from above; base transversely truncate. Scutellum small and feebly triangular. Elytra convex, truncate, and transversely impressed at base; sides nearly parallel in front, and broadly rounded behind. Sternal cavity formed entirely by the metasternum, the mesosternum invisible. Metasternum broad and nearly truncate in front. Prosternum wide, convex at middle; anterior margin truncate or arcuately emarginate; prosternal process rectangular and truncate at apex. Middle coxae not more widely separated than the anterior ones, the posterior pair nearly contiguous, and the sides parallel and scarcely dilated internally. Legs only feebly robust and not contractile; femora slightly swollen at middle; tibiae slender and cylindrical; tarsi very short; tarsal claws broadly toothed at base. Body oblong, subcylindrical, and equally rounded in front and behind.

This genus contains a small number of species which are distributed from the United States to South America, and so far only one has been recorded from the West Indies.

MASTOGENIUS UNIFORMIS Waterhouse

Mastogenius uniformis WATERHOUSE, Ann. and Mag. Nat. Hist., ser. 6, vol. 18, 1896, pp. 105–106.

The following is a copy of Waterhouse's original description:

Aureo-aeneous, convexus, sat nitidus, subtiliter punctulatus; capite convexa, fronte vix canaliculata; thorace lateribus leviter arcuatiss, basi truncato; elytris subparallelis, apice arcuatim attenuatis; antennis pedibusque fere nigris, tarsis brevibus flavescensibus.

Long. 2 mill.

Hab. Mount Gay Estate (Leeward side), Grenada, W. I. (H. H. Smith). I do not know of any Buprestid quite of this form; it reminds me somewhat of *Aurigena* in its outline, but has the thorax rather broader and more convex. The surface, when examined with the microscope, has somewhat the appearance of leather. Head convex, finely and not very closely punctured, with a slight median impressed line; below with a groove bordering the eye for the reception of the basal joints of the antennae, the groove continued on the sternum, but becoming gradually narrower and terminating about halfway between the front margin and the coxae. Antennae as long as the head and thorax together, the two basal joints moderately stout, the third joint rather slender, the following joints triangular, the terminal joint elliptical. Thorax transverse, convex, almost rectilinear at the base, not much narrowed at the

base, arcuately rounded at the sides; finely and not very closely punctured. Scutellum rather small, curvilinear. Elytra at base not quite as broad as the broadest part of the thorax, about three times as long as the thorax, with a very slight transverse impression at the base, without other impressions; the punctuation irregular, fine but distinct, the punctures moderately separated from each other. Underside sculptured as above. Front and intermediate coxae rather widely separated. The prosternal process broad, flat, parallel, truncate posteriorly, and fitting close to the metasternum, the process bordered on each side by a distinct but fine line, the lines diverging slightly as they approach the anterior margin of the prosternum; with a few large shallow punctures. Abdomen with no division between the first and second segments, together about half the length of the abdomen, the third and fourth short, fifth semicircular. Tarsi short, the first joint scarcely longer than the second. Claws dilated at the base, the dilation appearing in some positions like a large triangular tooth.

From the foregoing description it will be seen that this species differs from the typical species of *Mastogenius* in having a groove in the sternum for a portion of the antennae, and in having the basal joint of the tarsi short, etc.

My first impression was that it must be made the type of a new genus; but an examination of some allied forms has convinced me that this would be premature.

The type of this species is in the British Museum, and has not been examined by the writer.

CORRECTIONS

In my paper on The Leaf and Twig Mining Buprestid Beetles of Mexico and Central America²⁷ the following errors have occurred:

Page 6: The paragraph beginning with line 29 should be placed under the genus *Pachyschelus*, just before the key to the species on page 7.

Page 73: The first six lines in the key to the species of *Leiopleura* should read as follows:

- 5. Narrow species, more than two times as long as wide; pronotum with a deep depression near posterior angles, where the surface is obsoletely rugose, the sides distinctly margined----- *minuta* Kerremans.
- Broader species, not two times as long as wide; pronotum without a deep depression near posterior angles, where the surface is strongly rugose, the sides obsoletely margined----- *nigra* Waterhouse

²⁷ Proc. U. S. Nat. Mus., vol. 62, 1922, Art. 8.

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The following index includes all the genera and species treated in this paper. Valid genera are in bold face type; valid species in Roman; and synonyms in italics.

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